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PILL POPPIN' NATION: SUBSTANCE USE, MENTAL HEALTH, AND TREATMENT AMONG CRIMINAL JUSTICE-INVOLVED AFRICAN AMERICANS

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PILL POPPIN' NATION: SUBSTANCE USE, MENTAL HEALTH, AND TREATMENT AMONG CRIMINAL JUSTICE-INVOLVED AFRICAN AMERICANS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Education at the University of Kentucky

By

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2017

ABSTRACT OF DISSERTATION

PILL POPPIN' NATION: SUBSTANCE USE, MENTAL HEALTH, AND TREATMENT AMONG CRIMINAL JUSTICE-INVOLVED AFRICAN AMERICANS

The purpose of this dissertation was to examine substance use-related outcomes among criminal justice-involved African Americans using a multiple manuscript format. The Centers for Disease Control and Prevention has deemed nonmedical prescription opioid use an epidemic. National estimates indicate approximately 3.9% of African Americans engage in nonmedical prescription opioid use. Research suggests African Americans involved in the criminal justice system may be significantly at risk of substance use more generally; yet, there are no known estimates of nonmedical opioid use among this subgroup. Rising rates of nonmedical opioid use also has implications for discussing barriers to treatment among socioeconomically marginalized African Americans. Scholars have noted persistent health disparities are associated with a paucity of research examining: 1) the social and contextual paradigm in which substance use exists; 2) women's health; and 3) longitudinal studies examining determinants of substance use treatment among African Americans with criminal justice histories. The current multiple manuscript dissertation sought to directly contribute to the literature by: a) proposing a culturally specific conceptual framework of substance use among African Americans; b) examining trends and correlates of nonmedical opioid use among criminal justice-involved African American men; and c) investigating psychosocial predictors of substance use treatment among African American women across criminal justice status. In the first manuscript, preexistent health behavior theories were used as a premise to formulate and propose a culturally relevant conceptualization of substance use among African Americans. The proposed framework posited substance use exists within a psychosocial context and is associated with a host of related outcomes, including criminal justice involvement and HIV. In the second manuscript, Smart's (1980) availability-proneness theory of opioid addiction was used to conduct cross-sectional analyses of nonmedical opioid use. Descriptive statistics illustrated nonmedical opioid use among African American men in corrections-based drug treatment (n = 4, 021), were commensurate with national averages. Fitted logistic regression models revealed significant positive linear trends in nonmedical opioid use across five cohorts (2010-2014). A stepwise logistic regression model indicated age, years of education, depressive symptoms, anxiety symptoms, and self-reported use of prescription drugs to attenuate psychological distress were significantly related to nonmedical opioid use. Psychosocial context and systemic interventions were discussed. Future directions called for further examination of the potential progression of nonmedical prescription opioid use into

heroin use, among socioeconomically marginalized African American communities. In the third manuscript, Gelberg and colleagues' (2000) behavioral model for vulnerable populations was used to examine psychosocial predictors of substance use treatment over 18-months. A hierarchical logistic regression indicated African American women involved in the criminal justice system (n = 320) encounter several impediments to substance use treatment related to their marginalized status related to age, years of education, criminal justice status, a history of trauma, and perceived barriers to care. Implications for developing culturally- adapted treatment interventions and healthcare reform were discussed. The dissertation concludes with a synthesized discussion of the findings in relation to the proposed conceptual framework, overall strengths and limitations, and future directions for psychologists.

KEYWORDS: African Americans, substance use, treatment, opioid use, criminal justice

Joi-Sheree' P. Knighton

September 8, 2017

PILL POPPIN' NATION: SUBSTANCE USE, MENTAL HEALTH, AND TREATMENT AMONG CRIMINAL JUSTICE-INVOLVED AFRICAN AMERICANS

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September 8, 2017

To my mother, your sacrifice and perseverance is the reason I am the woman I am today. I am emotionally and spiritually invigorated by the values you instilled in me. I love you more and more every day.

To my brother, whose diligent spirit has taught me the importance of advocacy.

To every young child from the inner city with a big dream.

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Finally, I am humbled by and forever grateful to the men and women who trusted me with their lives and allowed me to learn from their experiences. My story would not be the same without them.

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CHAPTER 1

An Overview of the Dissertation Research

The dissertation comprises five chapters presented in a multiple manuscript format. The first chapter presented an overview of the content of each proceeding chapter, briefly summarized current literature, significance, operationalization of constructs, and research questions. The overview is followed by three chapters: 1) "Systemic Model of Substance Use among African Americans"; 2) "Nonmedical Prescription Opioid Use and Heroin Use among African American Men in Corrections-Based Drug Treatment"; and 3) "Psychosocial Predictors of Substance Treatment Use among Criminal Justice-Involved African American Women." Each manuscript chapter is presented in a format commensurate with guidelines for submission to a peer-reviewed journal. The dissertation concluded with an integration of conceptual and quantitative findings.

Overview of dissertation chapters

The first chapter provided an overview of the prevalence of substance use among African American adults and more specifically, those involved in the criminal justice system. The overview is followed by a section identifying gaps in current research which have informed the proposed research questions. A section defining repeatedly referenced constructs and research questions is also described. Chapter one will conclude with a summary of subsequent chapters.

The second chapter focused on outlining conceptual frameworks that have been used to understand health behavior. When possible, theories focused specifically on African Americans involved in the criminal justice system were summarized. Empirical

studies using selected frameworks were also described to identify strengths and weaknesses. A critical review of extant literature informed the proposed conceptual framework of substance use among criminal-justice involved African American men and women.

The third chapter used a preexistent psychosocial framework (Smart, 1980) to examine trends and correlates in nonmedical prescription opioid and heroin use among criminal justice-involved African American men in a cross-sectional study. The fourth chapter described psychosocial determinants among substance-using African American women across criminal justice status. The fifth chapter discussed the quantitative findings in relation to the proposed conceptual framework, strengths, limitations, future directions, and implications for counseling psychologists.

Substance use among African American men and women

National estimates suggest 46% of African Americans reported illicit substance use in 2016 (Centers for Behavioral Health Statistics and Quality [CBHSQ], 2017). African American men and women involved in the criminal justice system may be at increased risk for substance use compared to those in the community (Baillargeon et al., 2010; Mahmood et al., 2013; Mumola & Karberg, 2007). Recent surveys suggest nearly 65% of prisoners report illicit substance use in the year prior to incarceration (American Public Health Association [APHA], 2010) and more than 30% of individuals on probation used substances or met criteria for a substance use disorder, a rate that significantly surpasses individuals not on probation (i.e. 8%) (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). Disproportionate rates of substance use (U.S. Department of Health and Human Services [DHHS], 2013) an

criminal justice involvement among African Americans compared to other race/ethnicities (Carson, 2016) collectively, suggests examining substance use among this subgroup is warranted.

Disparities in substance use are especially pervasive among African American men involved in the criminal justice system (Baillargeon et al., 2010; Mumola & Karberg, 2006). Results from a range of cross-sectional (Bland et al., 2012; Khan et al., 2007), case-control (Wohl et al., 2000) and longitudinal (Adams et al., 2013; Clements-Nolle et al., 2008) studies suggest African American men engage in substance use before and after incarceration (Abiona, Adefuye, Balogun, & Slogan, 2009; Adams et al., 2013; Bland et al., 2012). More recently, scholars have noted an increase in nonmedical use of prescription opioids, particularly among African Americans residing in the south (Office of Drug Control Policy, 2015). Nonmedical use of prescription opioids may serve as a catalyst for heroin use, a highly lethal, and cheaper alternative (Muhuri, Gfrorer, & Davies, 2013; Volkow, 2014). Despite increased prevalence and related mortality, research examining trends in nonmedical prescription opioid use and heroin use (Muhuri et al., 2013; Volkow, 2014), across race/ethnicity is limited.

Rising trends in nonmedical prescription opioid and heroin use also has implications for examining treatment. Research suggests African American women are significantly likely to have perceived barriers to treatment related to low socioeconomic status (Flores & Pellico, 2011; Moloney, van den Bergh, & Moller, 2009), ex-offender status (Benson et al., 2011; West, Vayshenker, Rotter, & Yanos, 2015), and mental health symptoms (e.g. Batasani, Bolanos, & Morgan, 2014; Larkin et al., 2012; Schomerus et al., 2011). These findings suggest women with histories of incarceration may face unique obstacles participating in substance use treatment (e.g. Prendengast, 2009). Therefore,

further investigation of psychosocial predictors of substance treatment use among this subgroup has implications for addressing health disparities (National Institute on Drug Abuse [NIDA], 2014a).

Significance of examining substance use among African Americans

Collectively, these findings suggest African American men (Calcaterra, Beaty, Mueller, Min, & Binswanger, 2014; Rowell, Wu, Hart, Haile, & El-Bassel, 2012) and women (Heidemann, Cedarbaum, & Martinez, 2015; Sterk, Theall, & Elifson, 2005), may be disproportionately impacted by substance use. Some scholars posit current health disparities remain pervasive due to limited access to current conceptual frameworks that adequately incorporate socio-contextual correlates of health behaviors (Centers for Disease Control and Prevention [CDC], 2013a; Gehlert et al., 2008), sparse research investigating rising trends in nonmedical opioid use (CBHSQ, 2017), a dearth of literature specifically addressing women's health issues (Braithwaite, Treadwell, & Arriola, 2005), and limited quantitative research examining substance use treatment (SAMHSA, 2009), among criminal justice-involved African Americans (Braithwaite et al., 2005; LeCook & Alegria, 2011; Ozawa & Spirad, 2013; Pearson & Reake, 2000; United States Department of Justice [DOJ], 2010).

Existent literature is largely focused on predominantly White samples (e.g. Crawford et al., 2014; McNeese et al., 2009; Weiss et al., 2015; Nargiso, Kuo, Zlotnick, & Johnson, 2014), males (Belenko & Houser, 2012; Lee et al., 2015; Peters, Kremling, & Hunt, 2015; Wilson et al., 2012), or international non-African American samples (e.g. Milloy, Buxton, Wood, Montaner, & Kerr, 2009; Uhlmann et al., 2015; Zamani et al., 2010). Therefore, the current dissertation seeks to directly contribute to the literature

a) proposing a preliminary and culturally relevant framework of substance use, b) empirically examining trends and correlates in nonmedical prescription opioid use and heroin use, and c) investigating psychosocial predictors of substance use treatment among African Americans involved in the criminal justice system. Each manuscript attended to the intersectionality of race, gender, criminal justice involvement, and substance use. The findings from the proposed manuscripts also has implications for informing clinical interventions, policy, and public health (Dumont, Gjelsvik, Redmond, & Rich, 2013; Golder et al., 2014).

Definitions

The current dissertation consistently referred to several terms that may have various meanings depending upon context and subjective perspective of the reader. As a result, the terms, "criminal justice involved", "substance use", and "nonmedical prescription opioid use", will be further defined for specificity.

Criminal justice-involved is operationally defined as self-reported time in prison or on probation (Golder et al., 2014) at baseline. African Americans in prison are categorized as having a conviction(s) that resulted in detainment at a supervised correctional facility or institution. Individuals on parole have served part of their sentences in prison, and have been allowed to serve out the remainder of their sentence in the community. African Americans on probation are classified as those who may or may not have convictions that resulted in prison mandated sentences. Community correctional supervision or probation may have been required in lieu of a prison sentence (Golder et al., 2014).

Substance use references ingestion of illegal substances without a medical purpose (e.g. heroin). *Nonmedical prescription opioid use* is operationally defined as use

of controlled substances not prescribed to the individual, or using for a purpose other than intended (CBHSQ, 2017). Nonmedical prescription opioid use as operationally defined should be distinguished from *misuse*, or not using prescribed substances as instructed (WHO, 2006).

Prior to the release of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-V; American Psychiatric Association [APA], 2013) *substance abuse* and *substance dependence* were common terms used to describe clinically significant substance use. The current dissertation references s*ubstance use* based on the clinical definition given in the DSM-V. More specifically, nine criterion comprise substance use disorders: 1) consuming substance in larger quantities than anticipated or for an extended period of time; 2) self-reported desire and/or attempts to reduce substance use that have been unsuccessful; 3) prolonged periods seeking, using, or recovering from the effects of the substance; 4) intense urges or craving to use especially in the presence of reminders associated with substance use; 5) repeated instances of inability to fulfill daily obligations; 6) continued consumption despite chronic problems as a result of or exacerbated by substance use; 7) reduction in engagement of important tasks due to substance use; 8) using substance in potentially dangerous situations; and 9) continued ingestion despite knowledge that substance may induce or worsen physical or psychological issue(s)(APA, 2013).

Research questions

The research questions are grounded in extant literature and will be expanded upon further throughout the forthcoming chapters. As an overview, the research questions for the first manuscript are: 1) how do current theorists conceptualize substance use among African Americans involved in the criminal justice system? and 2) how can

current models inform a systemic framework of substance use among African Americans involved in the criminal justice system? The research questions for the second manuscript are: 1) Is there a statistical trend in nonmedical prescription opioid and heroin use across five cohorts of African American men in corrections-based drug treatment? and 2) What psychosocial correlates are significantly related to nonmedical prescription opioid use and heroin use among African American men in corrections-based drug treatment? The research question for the third manuscript is: 1) What psychosocial factors significantly predict substance use treatment, among criminal justice-involved African American women?

Conclusion

In summary, the dissertation project comprised two potential manuscripts primarily related to the intersection of race, gender, criminal justice involvement, and substance use. The dissertation was completed using a multiple manuscript format consistent with submission to peer-reviewed journals. Chapter one, provided an overview of each chapter and the overall significance of the dissertation. The first manuscript presented a preliminary framework of substance use among African American men and women (chapter two). The second manuscript examined nonmedical prescription opioid and heroin use among African American men in corrections-based substance treatment (chapter three). The third manuscript investigated psychosocial predictors of substance use treatment among African American women across criminal justice status (chapter four). Finally, the dissertation concluded with a summary of the studies, findings, limitations, and implications for future studies, clinical interventions, and policy (chapter 5). The findings from the current studies has implications for reducing health disparities (DHHS, 2013) and sustaining public health (NIDA, 2014).

CHAPTER 2

Systemic Model of Substance Use among African Americans

National estimates suggest 46% of African Americans reported illicit substance use in 2016 (Centers for Behavioral Health Statistics and Quality [CBHSQ], 2017). Substance use is also disproportionately higher among African Americans compared to other race/ethnicities in America (CBHSQ, 2017). African Americans who use illicit substances may be especially at risk for criminal justice involvement compared to non-substance-users (Baillargeon et al., 2010; Mahmood, Vaughn, Mancini, & Fu, 2013; Mumola & Karberg, 2007). Recent surveys indicate nearly 65% of prisoner's report substance use in the year prior to incarceration (American Public Health Association, [APHA], 2010). The disproportionate burden associated with substance use (U.S. Department of Health and Human Services, [DHHS], 2013) and related outcomes (e.g. criminal justice involvement) among African Americans (Carson & Anderson, 2016), suggests further research is necessary. However, there is a paucity of research examining: conceptual frameworks that adequately incorporate social and contextual correlates of health behaviors (Centers for Disease Control and Prevention, [CDC], 2013a; Gehlert et al., 2008), men's health concerns (Braithwaite & Stephens, 2005) and women's health issues (Braithwaite, Treadwell, & Arriola, 2005), particularly among marginalized African Americans (Braithwaite et al., 2005; LeCook & Alegria, 2011; Ozawa & Spirad, 2013; Pearson & Reake, 2000; United States Department of Justice, [DOJ], 2010). The current manuscript seeks to directly contribute to the literature by proposing a conceptual framework that attends to cultural, contextual, and systemic factors associated with substance use among African American men and women. Gaining a comprehensive

understanding of within-group substance use may have implications for informing strength-based counseling interventions.

Research Questions

The proposed research questions for the first manuscript are: 1) how do current theorists conceptualize substance use among African Americans involved in the criminal justice system? and 2) how can current models inform a systemic framework of substance use among African Americans involved in the criminal justice system?

Method

The framework proposed in the current manuscript was informed by previous theories on health behavior. A literature review of conceptual frameworks from the last 20 years was conducted. Theories used in recent literature (e.g. Hser, Longshore, & Anglin, 2007; Forthergill, Ensminger, Green, Robertson, & Soon, 2009) appeared largely influenced by those more than two decades old (e.g. Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Goldstein, 1985; Kellam, Branch, Agrawal, Ensminger, & Mental Health and Going to School, 1975). Therefore, to discuss current frameworks (2000-2015), a review of older (1985-1999) theories/primary sources was deemed necessary. Approximately 75 sources were discovered using the following electronic university databases: Academic Search Complete, CINAHL, eBook Collection, MEDLINE, Psychology and Behavioral Sciences Collection, PsycINFO, and Sociological Collection. Books and book chapters were also reviewed and requested through Interlibrary Loan as needed. Health behavior theories selected and reviewed in the current manuscript (N = 10) were prioritized by the following criteria: a) examination of race/ethnicity and

gender, and/or b) provided a discussion on the intersection between substance use, social influences, and systemic factors.

Review of previous models of health behavior

The aggregated theories from the literature review were largely created by psychologists and sociologists. As such, many of the selected theories could be conceptualized through general behavioral conceptualizations. Each framework will be discussed briefly by the following categories: a) attribution, b) social learning c) stress and coping, d) behavioral, e) social and contextual, and f) socioecological models.

Attribution theory. One of the primary ways in which health behavior can be understood is through locus of control (Rotter, 1966; Weiner, 1988). *Locus of control* refers to the extent to which a person believes outcomes are attributed to intrinsic or extrinsic factors (Rotter, 1966). An individual with intrinsic locus of control perceives an outcome is credited to personal characteristics (e.g. incompetence or competence) (Rotter, 1966). Extrinsic locus of control suggests the outcome of a situation is due to external and often uncontrollable factors, such as fate or luck (Rotter, 1966). The degree to which an individual perceives an outcome as intrinsic or extrinsic is also influenced by sociodemographic characteristics (Rotter, 1966; Weiner, 2014). For example, an African American male may attribute chronic joblessness to his race (intrinsic) and discrimination (extrinsic). Combined, outcomes attributed to uncontrollable circumstances are likely to induce a sense of learned helplessness, hopelessness about future success, and low self-efficacy (Weiner, 1988). According to attribution theorists (Rotter, 1966; Weiner, 1988) these perceptions of self, will in turn, influence health behavior.

Social learning theory. Negative perceptions of self may also increase African American's susceptibility to social influence (Nebbitt, Williams, Lombe, McCoy, & Stephens, 2014). Bandura's (1986) *social learning theory*, posits that individual behavior is primarily learned and driven by external forces (Bandura, 1986), including family, friends, and significant others. Individuals learn behaviors by observing other people's actions and outcomes (Bandura, 1986). From this vantage, African American men and women may learn unhealthy behaviors (e.g. substance use) through the same avenue in which they learn socially desirable behaviors.

Stress and coping models. The *life stress model* (Aneshensel & Huba, 1984) resembles the social learning theory in that it attends to the nexus between the individual and environmental risk factors. More specifically, the *life stress model* hypothesizes that stressors prompt health-related behavior. From this perspective, specific health behaviors may be engaged as coping strategies in the absence of more adaptive resources (Aneshensel & Huba, 1984; Brook, Brook, Gordon, Whiteman, & Cohen, 1990). Other scholars have also reported that females may be more likely to engage in less adaptive health behaviors when confronted with life stress compared to their male counterparts (Illangasekare, Burke, McDonnell, & Gielen, 2013; Lipsky & Caetano, 2007).

One explanation for the increased risk of partaking in unhealthy behavior among women may be understood by the *stress-vulnerability model* (Bandura, 1969). The stress-vulnerability model suggests an individual's capability of managing life stressors will predict their propensity towards psychological distress (Bandura, 1969) and health behavior (Anderson, Ramo, & Brown, 2006). Previous studies have revealed that women, compared to men may be more susceptible to developing psychological distress (e.g.

Aranda & Chatters, 2012; Jones, 2014; Lanier & DeMarco, 2015). As psychological distress increases, African American females may be more likely to internalize (e.g. self-loathing) stress (Mays, Cochran, & Roeder, 2003). In contrast, males may be more likely to engage in externalizing behaviors (Nebbitt et al., 2014).

Behavioral models. The *Health Belief Model* (HBM; Rosenstock, Stretcher, & Becker, 1988) further addresses the interface between stress and health behavior. More specifically, an individual must perceive the following to engage in a health behavior: a) that they are vulnerable to a situation (chronic stressors), b) the severity of the situation justifies the action, c) believe the behavior is a viable strategy to manage the situation, and d) consider him/herself as capable of managing the health behavior (substance use) despite its consequences (substance use disorder).

Like the *Health Belief Model* (Rosenstock et al., 1988), the *Theory of Planned Behavior* (TPB; Ajzen, 1985) hypothesizes that individuals engage in a conscientious process before initiating behavior. The cornerstone of this theory focuses on perceived rewards and consequences of engaging in a health behavior (Ajzen, 1985) (e.g. substance use). Rosenstock and colleagues (1988) also posit that health behavior is impacted by social norms and ease of partaking in a specific health behavior (Ajzen, 1985; Maddaux & DuCharme, 1997). Therefore, the *Theory of Planned Behavior* (Ajzen, 1985) emphasizes the intersection between individual, interpersonal, and community factors that may impact health behavior.

The review of extant models has primarily illuminated the impact of individual, interpersonal, and community-level influences on health behavior. However, there is only one known theory that has collectively attended to determinants of health behavior across

micro and macro-levels among African Americans (Brunswick & Rier, 1995). Further, there are no known theories that conceptualize substance use among criminal justice-involved African Americans. Failure to incorporate more systemic factors, particularly related to substance use, inherently reinforces ideology surrounding personal choice and victim blaming (McLeroy, Bibeau, Steckler, & Glanz, 1988). As a result, social, contextual, and ecological theories will be used as a premise to discuss a preliminary framework of substance use.

Social and contextual theory. The structural strain theory (Brunswick & Rier, 1995) posits distress arises when there is a discrepancy between socially acceptable behavior (e.g. work, school) and viable avenues of execution. Theorists hypothesize structural strain will lead marginalized groups to pursue success and opportunity through alternative, less desirable avenues (Brunswick & Rier, 1995). The structural strain theory also suggests this disparity is more common among the socially disenfranchised, a status disproportionately held by African Americans and substance users (Brunswick & Rier, 1995; Wilson, 2012). A framework that integrates individual and systemic factors is arguably the most suitable paradigm to conceptualize substance use among African Americans (Brunswick & Rier, 1995).

Socioecological theory. Brunswick and Rier's (1995) structural strain theory also builds upon Brofenbrenner's (1979) socioecological theory, which suggests micro and macro-level factors influence individual behavior. McLeroy and colleagues (1988) further extended Brofenbrenner's (1979) socioecological theory and proposed a framework focused on health promotion and behavior. From this stance, the etiology of substance use is understood in relation to other factors, including: individual traits,

interpersonal relationships, neighborhood influences, and government policies (Brofenbrenner, 1979; McLeroy et al., 1988). Though the socioecological theory has been used in the past (Foster & Brooks-Gunn, 2013; Jones, Forehand, Brody, & Armistead, 2003; Zandi & McCormick, 1991), evidence of its utility in conceptualizing substance use and related outcomes among African Americans has been limited (Brunswick, 1999). Furthermore, of the studies located (e.g. Brunswick, 1999), individual cultural factors (e.g. racial identity) were not discussed. Therefore, one of the primary aims of the current manuscript is to propose a systemic framework, with a focus on culturally relevant determinants of substance use across African American men and women.

Psychosocial determinants of substance use

Substance use is a multi-layered phenomenon that necessitates a systemic perspective (Galea, Nandi, & Vlahov, 2004). Therefore, variations of the previous theories will be used to inform the preliminary conceptual framework proposed in the current manuscript. More specifically, the following elements from each model will be included: 1) individual level factors that impact locus of control and subsequent behavior (attribution theory; Rotter, 1966); 2) the influence of interpersonal relationships, perceived normative behavior, and self-efficacy (social learning theories; Bandura, 1986); 3) the impact of daily stress and social support on substance use (life stress model; Aneshensel & Huba, 1984); 4) culturally specific stressors and mental health symptoms that increase vulnerability towards substance use (stress-vulnerability model; Bandura, 1969); 5) a discussion about the relationship between stress, coping, and substance use (health belief model; Rosenstock et al., 1988); 6) rewards, consequences, and ease of

partaking in substance use (theory of planned behavior; Ajzen, 1985); 7) the association between systemic concerns and substance use (structural strain theory; Brunswick & Rier, 1995); and 8) constructs from McLeroy and colleagues (1988) health promotion theory will be used as a premise to propose a culturally specific framework of substance use among socioeconomically marginalized African Americans.

Individual. Individual factors encompass sociodemographic characteristics, locus of control, self-efficacy, mental health (McLeroy et al., 1998), and racial identity. Sociodemographic characteristics, including: age, race, gender, education, employment status, and income provide a general context in which an individual's propensity toward substance use can be understood. For instance, lack of education, unemployment, and low socioeconomic status are common risk factors associated with substance use (Sterk, Elifson, & DePadilla, 2014). The degree to which an individual possesses these personal resources is also likely to impact perceived control over outcomes (e.g. Nebbitt et al., 2014). African Americans who suspect their social and economic disenfranchisement is due to racial discrimination (extrinsic locus of control) may have lower *self-efficacy*, or perceived ability to succeed (Bandura, 1977). Less self-efficacy could result in symptoms of depression (Jefferson, Neilands, & Sevelius, 2013), anxiety (Seth, Raiji, DiClemente, Wingood, & Rose, 2009), and/or general feelings of self-loathing. For example, Nebbitt and colleagues (2014) found that African American males residing in low-income housing reported significantly less self-efficacy, greater exposure to delinquent peers, more family conflict, greater symptoms of depression, and frequent substance use, compared to females. In contrast, a sense of self-efficacy can be protective (e.g. Wood, Newman, & Harris, 2015) against socioeconomic adversity.

Self-efficacy is also predicated upon an individual's *racial identity*, or a sense of one's belongingness with a specific race (Helms, 1984). Racial identity influences perceptions of self, personal values, consciousness, and views about Blackness (Helms, 1984). Racial identity is a particularly salient protective attribute among African Americans (Bynum, Best, Barnes, & Burton, 2008; Helms, 1990; Phoenix & Rattansi, 2005; Sellers et al., 1997), serving as a buffer against the psychological impact of daily stressors (Franklin, 2010; Helms, 1990), and associated risk of substance use (Watkins & Neighbors, 2013). African Americans with a less developed racial identity who experience chronic racism, sexism, and daily stress, may be especially susceptible to symptoms of depression and anxiety (Campbell-Flint, 2000; Parham and Helms, 1985), and substance use (Brook & Pahl, 2005). Therefore, individuals with limited resources, chronic stress, and mental health symptoms, may be more likely to engage in substance use in the absence of culturally specific protective factors (Brook & Pahl, 2005; Bynum et al.,2008).

Interpersonal. The interpersonal component captures the dynamic between the individual and his/her interactions with peers, family, and intimate partners. *Social relationships* are often central influences of health behavior among African Americans (Debnam, Holt, Clark, Roth, & Southward, 2012). More specifically, observed behavior by significant others are especially probable sources of modeling, initiation, and reinforcement of substance use (National Institute on Drug Abuse, [NIDA], 2012). For example, Arteaga, Chen, and Reynolds (2010) found negative peer networks and parental substance use significantly predicted substance use in adulthood among 1,208 low-income youth (93% Black). The increased risk of substance use among African

Americans with substance-using peers and family members have also been documented in national reports (NIDA; 2012), cross-sectional studies (Dawkins, Williams, & Guilbault, 2006; Watt, 2008), and longitudinal studies (e.g. Maton & Zimmerman, 1992). In contrast, individuals with exposure to supportive social relationships (Buttram et al., 2013), non-using peers and family members are less likely to use substances (Brook, Whiteman, Balka, & Hamburg, 1992; SAMHSA, 2009). In turn, social support is likely to increase self-efficacy and reinforce racial identity development (Helms, 1990; Franklin, 2010). For example, family unity, strong kinship bonds, and a sense of racial pride have been identified as resiliency factors against substance use among African Americans (Gary & Littlefield, 1998). However, African Americans who lack access to supportive communities (e.g. sports coach, mentor) may not have access to these protective barriers. The likelihood of receiving social support is further predicated upon the socioeconomic structure of the respective community (Franklin, 1999, Wilson, 2012). That is, African Americans residing in financially impoverished communities may have more exposure to antisocial behaviors (i.e. substance use) compared to individuals in economically stable neighborhoods (Wilson, 2012).

Institutional. Financially deprived communities are also likely to be disproportionately impacted by institutional barriers (Wilson, 2012). The institutional construct captures the association between the individual and external organizations (McLeroy et al., 1988). Research abounds suggests institutional factors, including racism and access to resources influence health behavior (Mendez, Hogan, & Culhane, 2011; Paradies, Truong, & Priest, 2014; Ramaswamy & Kelly, 2015). More specifically, *institutional racism*, or any organizational guidelines, structure, actions, or allocation of

resources that unfairly discriminate based on race (Sue, 2006), may have a direct or indirect effect on substance use among African Americans (Lynch, 2011). From a broad perspective, institutional racism impacts multiple systems that influence health behavior, including: a) redlining, or housing policies that disproportionately impact racially segregated communities (Wilson, 2012); b) hiring practices that unfairly discriminate based on race (Colarelli, Poole, Unterborn, & D'Souza, 2010), and c) allocation of limited funding to school systems with predominantly low-income and African American students (Ford & Helms, 2012). These institutional barriers are all associated with poverty, social immobility, and poor health outcomes (Utsey & Constantine, 2008).

Experiences of racism across social, economic, and educational domains is significantly related to general stress, impaired mental health (Utsey & Constantine, 2008) and increased likelihood of developing a substance use disorder (Ehrmin, 2002; Hunte & Barry, 2012). For example, Clark and colleagues (2015) reported that African American (n = 3,570) and Caribbean Black adults who experienced race-related stress were significantly more likely to meet criteria for a substance use disorder, compared to those with less race-related stress. These findings suggest that *internalized racism*, or the acceptance of demeaning messages about competence and self-worth have an overall poor impact on psychological health (Jones, 2000) and propensity towards substance use (Hunte & Barry, 2012).

The adverse effects of racism on substance use can sometimes be mitigated by access to psychosocial resources (e.g. Stevens-Watkins, Perry, Harp, & Oser, 2012). Social services include: job locator services, food assistance, subsidized housing, and access to mental health treatment (USA.gov, n.d.). If structural barriers impede access to

social services, individuals may perceive their situation as permanent, hopeless (Weiner, 2014; Wilson, 2012) and evidence of ineptitude or low self-worth (Franklin, 2010). As symptoms of depression and anxiety increase, hopes for future success wane (Weiner, 2014). Consequently, substance use may become a seemingly viable coping strategy to manage oppression and social dislocation, (Majors & Billson, 1992; Wilson, 2010) common among African American communities.

Community. The community component comprises the relationships between individuals, interpersonal processes, and institutional domains (McLeroy et al., 1988). From this stance, neighborhood factors are conceptualized as a principal component of health behavior (Alegria et al., 1998). The neighborhood in which African Americans reside determines perceptions of normative behavior, surrounding substance use and crime (Wilson, 2012). Some scholars posit that neighborhood factors are especially influential on substance using behavior when social mobility is limited (e.g. Campbell, Wilmoth, & Mason, 2015; Sterk et al., 2014). For example, shortage of job opportunities in racially segregated communities, poor school systems, and lack of social pressure to academically succeed, are risk factors of substance use (Alegria et al., 1998). In contrast, neighborhoods with upwardly mobile resources including: viable employment opportunities, access to quality school curriculum, and academically supportive social communities are expected to be protective against substance use (Alegria et al., 1998).

Hip-hop culture is also an integral and potential risk or protective factor among socially marginalized African American communities (Travis & Bowman, 2011). More specifically, hip-hop culture has been theorized as providing an outlet for African Americans to express discontent with racism, sexism, and social dislocation (Veltre &

Hadley, 2012). Channeling anger, frustration, and sadness about one's circumstances into music is a particularly socially acceptable form of empowerment (Travis & Bowman, 2011). However, more recently, hip hop culture has become more familiar for its emphasis on substance use (Gruber, Druley, Skolada, & Waxman, 2005; Primack, Dalton, Carroll, Agarwal, & Fine, 2008) and recreational and nonmedical prescription opioid use (Hart, Agnich, Stogner, & Miller, 2014). 'Glorification' normalizes substance use through associated images of luxury and wealth (Primack et al., 2008). Internalization of these messages may encourage alternative avenues of securing financial sustainment (e.g. substance use and selling) (Brunswick, 1999). Thus, exposure to some hip-hop culture may promote substance use and crime, which has implications for criminal justice-involvement, among a subgroup of individuals.

Public policy. The probability of criminal justice-involvement is also determined by government policies, laws, and procedures. These underlying tenets provide an overarching systemic context in which substance use and related outcomes can be understood. While there are numerous public policies that can be discussed in relation to substance use, the scope of the current manuscript will focus primarily on the "War on Drugs" (Office of National Drug Control Policy, [ONDCP], 2001; Ryan, 1998).

The "War on Drugs" was declared in the early 1980s and has resulted in an unrelenting campaign against substance use-related crimes in America (ONDCP, 2001; Ryan, 1998). The "war on drugs" campaign has largely been executed through the criminalization, opposed to the treatment, of substance use including: 1) large scale funding to support stop and frisk searches and arrests almost exclusively in low-income urban neighborhoods; and 2) drug laws that have historically and disproportionately

impacted African Americans (Anderson, 2011). For instance, a cornerstone of the "War on Drugs" was the 100 to 1 rule (Belenko, 1993). This law declared possession of five grams of crack cocaine would result in a mandatory five-year sentence (Belenko, 1993). In contrast, an individual would have to possess 100 times as much powder cocaine to get the same sentence (Belenko, 1993). Being more likely to be involved with the crack cocaine trade, African Americans were significantly impacted by the enactment of the "War on Drugs" (Belenko, 1993).

More recently, others suggest, despite selling and using substances less than Whites, African Americans are still significantly more likely to be involved in the criminal justice system for related crimes (Vaughn, Salas-Wright, DeLisi, Shook, & Terzis, 2015). Consequently, rates of incarcerated African American men and women for substance-related charges remain unparalleled compared to individuals of other race/ethnicities (Anderson, 2011; Carson & Anderson, 2016). These disparities have persisted despite the Obama Administration's substance reform initiatives (Egleston, 2015). As the federal budget increases to accommodate the current prison population (Carson & Anderson, 2016), funding for social services and education programs have decreased (Mitchell & Leachman, 2014). Access to quality education and skills training in low-income African American communities are also limited, making it difficult to obtain employment in a competitive job market (Wilson, 2012). Consequently, poverty is almost inevitable and lends itself to a criminogenic environment; therefore, continuing the cycle of social immobility and likelihood of incarceration among subgroups of African Americans (Wilson, 2012).

Gender differences in substance use. The preceding sections of the proposed conceptualization have primarily explored common risk factors of substance use among African American men and women. However, extant literature suggests the trajectory towards substance use may differ across genders (Alegria et al., 1998; Leukefeld & Leukefeld, 1999). More specifically, gender norms (Hammond, Powell, & Mattis, 2005) and sexual orientation (Arnold et al., 2014) are culturally specific factors that may influence substance use risk among African American men (see Figure 1.1). Inversely, relationships with sexual partners (Mayock, Cronly, & Clatts, 2015), intimate partner violence/histories of trauma (Wu et al., 2015), and role strain may illuminate more specific risk factors among African American women (Brown, Tracy, Jun, Park, & Min, 2015) (see Figure 1.2). The following sections will explore within-group gender differences and associated substance use risk factors.

Substance use among men. Traditional gender norms valued among African American men are likely to incorporate Eurocentric and Afrocentric values, including: responsibility-accountability, exercising autonomy, and being a financial provider (Hammond et al., 2005). However, institutional racism limits access to resources (i.e. education and employment) that would allow African American men to fulfill these roles (Franklin, 2010; Tyler, 2014). Additionally, *invisibility*, or an intrapersonal sense that one's values, skills, intellect, or character are devalued, are also likely to deter endeavors in perceived hostile workplaces and academic settings (Franklin, 2010). The discrepancy between an African American man's culturally valued norms and his reality (i.e. systemic barriers) may result in a significant period of confusion, agony, and hopelessness (Mahalik, Pierre, & Wan, 2006; Perkins, Kelly, & Lasiter, 2014; Watkins & Neighbors,

2013). Subsequently, adoption of non-traditional gender norms may be rationalized as necessary to manage recurrent threats to one's psyche, perceptions of masculinity, and financial obligation to family (Hammond et al., 2005; Majors & Billson, 1992). However, non-traditional gender norms often normalize criminogenic behavior, including substance use and crime, which place men at risk for incarceration (Wilson, 2012) and continued social marginalization (Anderson, 2011).

The cyclical pattern of social disenfranchisement, substance use, and related outcomes are also pervasive among African American men with histories of male-to-male sexual contact (e.g. Arnold et al., 2014). Arnold and colleagues (2014) asserted that perceived stigma and discrimination, couched in societal racism, was associated with substance use and high-risk sexual behavior among a sample of African American men. To expand, social support is often a buffer against the psychological impact of social immobility, racism, and discrimination among African Americans. However, African American men who engage in male-to-male sexual contact are frequently ostracized from their race-concordant social support systems. The compounding effects of societal racism, prejudice from family/friends, and social displacement, profoundly impacts mental health and susceptibility to substance use (Arnold et al., 2014).

Substance use among women. Like African American men, evidence suggests proclivity toward substance use among African American women is significantly linked to interpersonal factors (Mayock et al., 2015). Most women in a recent study endorsed using heroin for the first time with older male partners (e.g. Mayock et al., 2015). Women in the study conveyed being lured by the financial stability of their substance-dealing and using partners (Mayock et al., 2015). Similarly, Hebert and colleagues (2013) reported

that incarcerated females with histories of substance use were more likely to have romantic partners who were intravenous substance users. Other studies also reveal that substance use commonly co-occurs with intimate partner violence (e.g. Nowotny et al., 2015; Wu et al., 2015). For example, Nowotny and colleagues (2015) indicated that incarcerated females (n = 491; 37.4% Black) with substance use disorders were significantly more likely to have histories of intimate partner violence (76.9%), physical violence (86.5%) and sexual violence (79.8%). The association between violence and substance use warrants consideration of four hypotheses: 1) erratic and violent behavior may be substance-induced (Wu et al., 2015), 2) substance use is likely to impair judgement, making it difficult to resolve conflicts nonviolently (Wu et al., 2015), 3) substance use increases the likelihood of being in vulnerable situations (e.g. sex work) in which violence is more common (Suiter, 2012), or 4) intimate partner violence increases the likelihood of psychological distress and subsequent substance use (Illangasekare et al., 2013). Moreover, the relationship between histories of violence, psychological distress, and substance use are especially common among socially marginalized African American women (Illangasekare et al., 2013; Lipsky & Caetano, 2007).

Socially marginalized African American women often 'carry the weight' of role strain (Beauboeuf-Lafontant, 2009; Black & Peacock, 2011), sustaining multiple and sometimes conflicting positions. For example, African American women often contend with being single parents, primary breadwinner, and pillar of strength for immediate family, extended family, and fictive kin, (Beauboeuf-Lafontant, 2009; Black & Peacock, 2011). These culturally defined roles are often maintained with limited social support (Bronder, Speight, Witherspoon, & Thomas, 2014) and financial resources (Nesmith &

Ruhland, 2011). To add to the stressors, systemic barriers, including institutional racism and sexism often complicate sustainment of roles and responsibilities (Mendenhall, Bowman, & Zhang, 2013). In the absence of active coping strategies (e.g. perseverance in the face of adversity), susceptibility to psychological distress is heightened (James, 1994) and likelihood of using substances to self-medicate is more probable (Mays et al., 2003). For instance, a meta-analysis declared that substance use among women was associated with greater mental health symptoms and functional impairment compared to men (Connor, Pinquart, & Duberstein, 2008).

Functional impairment, is but one of several substance-related outcomes (e.g. incarceration) among African American men and women. While individuals of other race/ethnicities may experience similar consequences of substance use (Mumola & Karberg, 2007), the disproportionate burden of substance-related outcomes among African Americans is of significant concern (CDC, 2014; Floyd et al., 2010; Keen, Dyer, Whitehead, & Latimer, 2014). As outlined in the preceding sections, socioeconomic status, marginalized social locations, and systemic barriers play an integral role in substance use among African Americans (e.g. Adimora, 2007; Schmitt & Warner, 2010; Watkins & Neighbors, 2013). Undoubtedly, these same factors influence substance-related outcomes. Therefore, the impact of individual as well as systemic factors, are of interest in conceptualizing substance-related outcomes among this subgroup.

Substance use-related outcomes. Social dislocation and engagement in substance use increases the likelihood of experiencing a host of related outcomes, including: a) *incarceration* (Mumola & Karberg, 2007), b) development of a *substance use disorder* (American Psychiatric Association [APA], 2013), c) *engagement in high-*

risk sexual behavior (Meade et al., 2014; Pallonen, Timpson, Williams, & Ross, 2009; Wu et al., 2015), d) *acquiring sexually transmitted infections* (CDC, 2014) and e) *human immunodeficiency virus* (HIV) (CDC, 2015a). Substance-related outcomes have significant implications for the sustainment of health among African Americans and society at-large (Adimora, 2007; Dumont et al., 2013). Therefore, the association between substance use and related outcomes will be discussed in proceeding sections.

Incarceration. Criminal justice involvement is one of the most pervasive substance-related outcomes among African Americans (e.g. Anderson, 2011; Carson & Anderson, 2016). As aforementioned, the criminalization of substance use has resulted in mass rates of incarcerated African American men and women (Anderson, 2011). A recent report by the Bureau of Justice Statistics indicated that African American men comprised the largest group of current state and federal detainees (37%) (Carson, 2014). African American females represented a smaller percentage (22%) of the prison population compared to White females (Carson, 2014). However, the rate of incarceration among African American females is more than twice the rate among White females (Carson, 2014). Incarceration, in turn, further strains the socioeconomic status of African American families and communities (Watkins & Neighbors, 2013). For example, the absence of African American men due to incarceration is associated with the loss of financial stability (Adimora, 2007) and acquisition of combined assets associated with two-parent households (Wilson, 2012). African American men and women who return to respective families following incarceration are also more likely to have difficulty securing employment due to preexisting structural barriers (Wilson, 2012) and ex-offender status (Schmitt & Warner, 2010). Therefore, incarceration further exacerbates already limited social mobility.

Substance use disorder. Social mobility is further compromised by the potential for developing a substance use disorder (Lemke & Schaefer, 2010). Functional impairment associated with substance use increases the likelihood that individuals will be unable to successfully maintain daily obligations (i.e. work, school, family life) (APA, 2013). The inability to sustain responsibilities may further reinforce learned helplessness, pessimism, impede motivation, and diminish resiliency (Wilson, 2012). As related mental health symptoms increase, substance use is likely to become more pervasive (Vaughn et al., 2015). As substance use increases, engagement in riskier behaviors also heightens (CDC, 2013a). For instance, trading sex for substances is a common co-occurrence among individuals with substance use disorders and limited financial resources (CDC, 2013a).

High-risk sexual behavior. Engagement in high-risk sexual behaviors is a particularly common underground avenue to obtain money, housing, or food among substance users (e.g. Miller, Liao, Wagner, & Korves, 2008). Miller and colleagues (2008) indicated that 38% of African American female substance-users with HIV endorsed histories of sex work. Another study found that substance-using African American men had greater histories of sex work, compared to White and Hispanic men across seven urban areas (Harawa et al., 2004). National reports have also indicated substance users are more likely to engage in unprotected sex while under the influence of substances (CDC, 2013b). Inconsistent or lack of condom use is also associated with an increased likelihood of acquiring sexually transmitted infections (Adimora, 2007; Farel et al., 2013).

Sexually transmitted infections. The co-occurrence of sex and substance use increases vulnerability of acquiring sexually transmitted infections or STIs (CDC, 2013a;

Harawa et al., 2004; Miller et al., 2008). Specifically, national estimates suggest African Americans who use substances are significantly more likely to acquire chlamydia, gonorrhea, syphilis, and hepatitis C (CDC, 2014). Keen and colleagues (2014) also declared that African Americans who nasally administer heroin comprised the majority of the HIV positive cases in their sample of 482 polysubstance users (49% African American). The severity of an opiate use disorder may be associated with the increased likelihood of engaging in high-risk behaviors in exchange for substances (e.g. Fuller et al., 2005; Meade et al., 2014). More concerning, African American men and women who inject substances (CDC, 2011) and have histories of sexually transmitted infections are significantly more likely to acquire human immunodeficiency virus (HIV), compared to other race/ethnicities (CDC, 2015b).

HIV. The association between human immunodeficiency virus (HIV) and substance use has been well-documented among African Americans (Cole et al., 2014; Keen et al., 2014; Miller et al., 2008). Being under the influence lowers inhibitions, impairs decision-making and judgement (Ford, Whetten, Hall, Kaufman, & Thrasher, 2007). Therefore, individuals may be more likely to share needles, syringes, cookers, and other substance injection equipment (CDC, 2015c). Sharing unclean injection substance equipment significantly increases the likelihood of acquiring and transmitting HIV (CDC, 2015d). Additionally, as stated above, individuals who engage in sex while under the influence are less likely to use condoms (Abiona, Adefuye, Balogun, & Sloan, 2009; Bland et al., 2012; Clements-Nolle et al., 2008; Farel et al., 2013; Khan et al., 2007; Miller et al., 2008), which significantly increases the likelihood of acquiring of HIV (CDC, 2013b).

Summary of substance use processes. As proposed, correlates of substance use among African Americans are largely rooted within a socioecological context. More specifically, the literature suggests substance use among African Americans may be best understood by a five-factor model: 1) psychosocial determinants of behavior, 2) attribution, 3) mediating variables, 4) initiation, and 5) substance-related outcomes (see Figure 1.3). The prior review of the literature purports, psychosocial determinants of behavior include individual, interpersonal, institutional, community, and public policy. These determinants influence attributions derived from experiences within various social contexts. For example, individuals who believe they are self-efficacious and have social support may persevere in the face of systemic barriers. Men and women without these protective barriers may attribute adversity to their own perceived shortcomings (attribution). As a result, they are more susceptible to psychological distress (mediating variables). As the burden of mental health symptoms worsen, individual's proclivity to seek solace in less socially desirable domains increases. Often, these alternative avenues are criminogenic, embodying substance use (initiation) and related consequences, (e.g. incarceration). As described, the proposed constructs of the model are not discrete. There is often overlap between constructs, which further illuminates the complexities associated with capturing the etiology of substance use among African American men and women.

Clinical implications

Working from a systemic perspective is only part of a much needed and comprehensive solution to address current racial disparities related to substance use. Integration of social and cultural factors in clinical conceptualizations and practice are also necessary. More specifically, evidence-based practice urges psychologists to tailor empirically supported treatments to the client and comfort of the practicing clinician

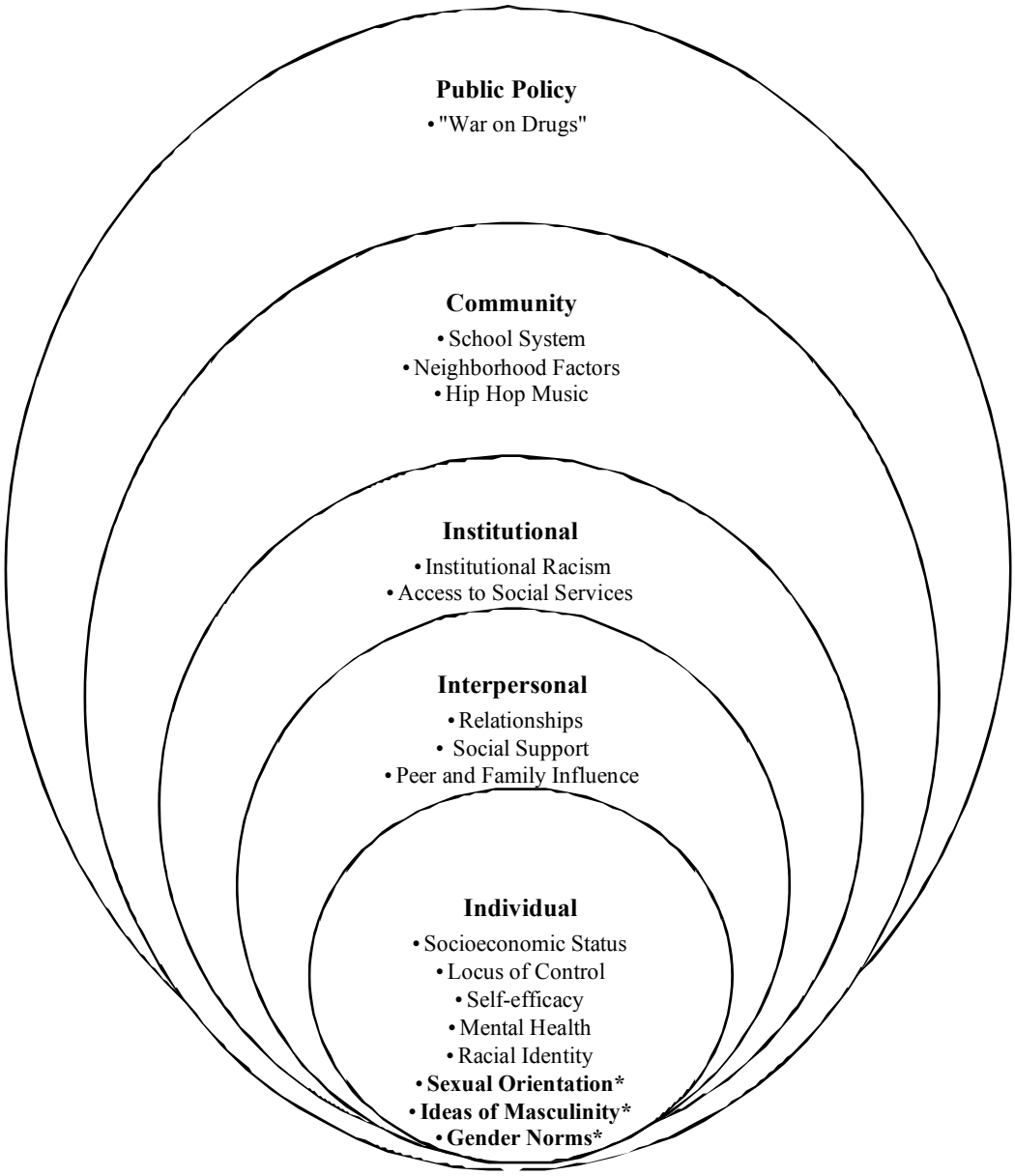
(American Psychological Association, [APA] 2006). Psychologists working with African Americans however, may find that their comfort is jeopardized after hearing repeated stories of perceived racism, injustice, and prejudice. This dissonance may be especially salient for race-discordant therapists with less marginalized social locations (Sue, 1978). However, it is important for psychologists to resist the urge to immediately challenge perceived experiences or 'isms' and subsequent choices (e.g. substance use). Instead, responding with respect, non-judgment, empowerment, and a strength-based perspective is more commensurate with the core values of counseling psychologists (Packard, 2009). Strength-based approaches may include: a) exploring client's access to potential protective factor(s) against psychological distress and resultant substance use (Arnold et al., 2014; Illangasekare et al., 2013; Lipsky & Caetano, 2007); b) brainstorming avenues in which the individual can rebuild social support systems that may have been jeopardized as a result of substance use; c) collaborating with client to design a culturally sensitive treatment plan; and d) consider the utility of a multi-systemic rather than an exclusively individualized approach. In executing suggested interventions, psychologists working with marginalized groups of African Americans, should be especially intentional and committed to assessing their personal journey of cultural humility and privilege (Hook, Davis, Owen, Worthington, & Utsey, 2013).

Conclusion

In summary, the preliminary model provides a systemic perspective from which substance use among African Americans can be examined. The proposed framework emphasizes the bidirectional exchange between various levels of an individual's social environment, substance use and related outcomes. Many of the constructs presented above are not unfamiliar (e.g. racism). However, few efforts to illustrate the systemic

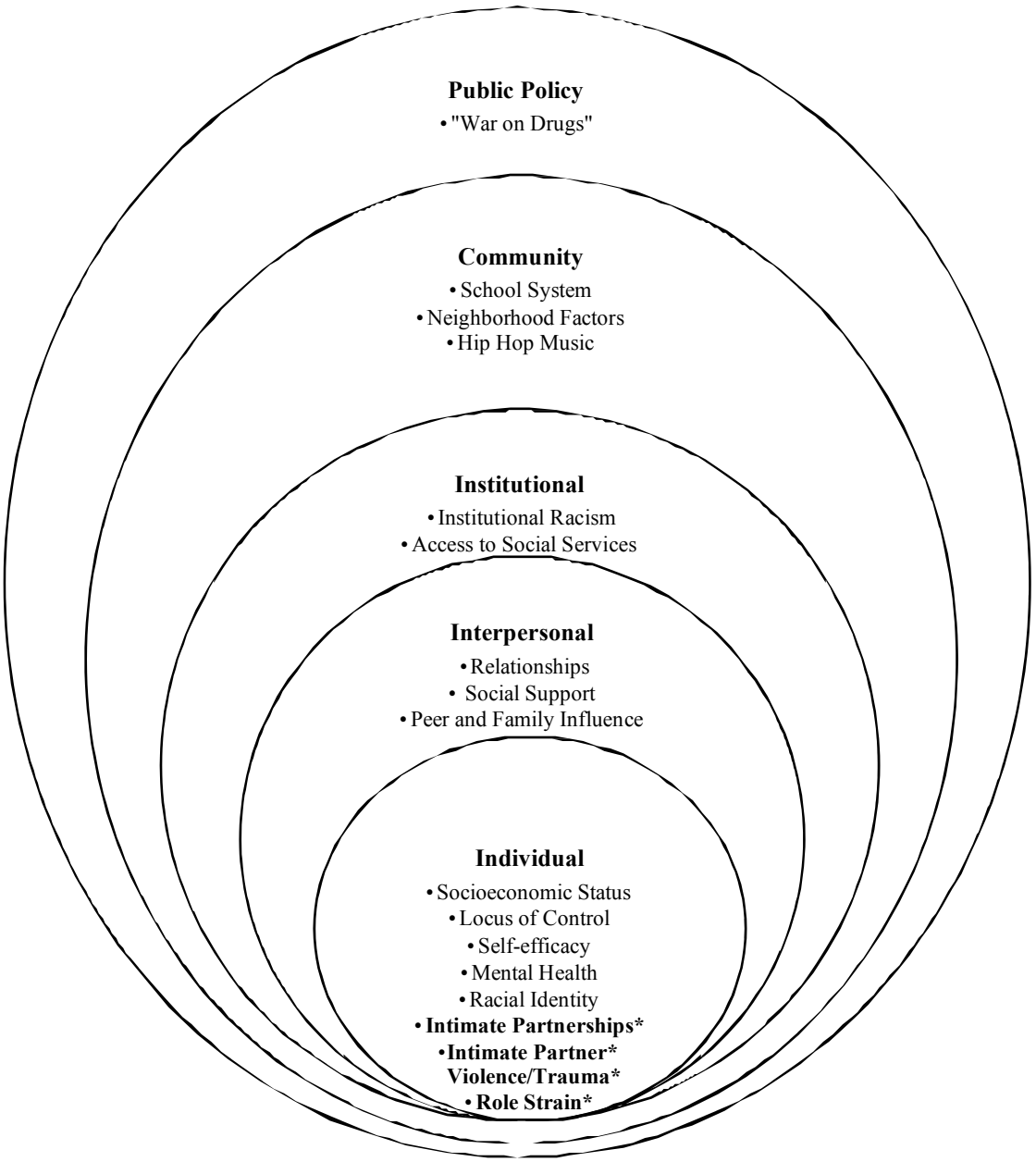
context in which substance use among African Americans occurs, have been documented (Brunswick, 1999). The lack of attention to social and contextual factors places the emphasis on the individual and inherently conveys blame and sole responsibility on the person (Brunswick, 1999; McLeroy et al., 1988). Furthermore, many extant models fail to incorporate an emphasis on culturally specific protective factors (e.g. Ajzen, 1985; Aneshensel & Huba, 1984; Bandura, 2004; Brook et al., 1990; Rosenstock et al., 1988), which could be perceived as over-pathologizing. The current manuscript directly contributes to the literature by: a) proposing a systemic model of substance use and related outcomes among African American men *and* women, and b) providing suggestions for clinical practice. With the increasing rise of illicit substance use and prescription substance use among African Americans (ODCP, 2015), the conceptual model may have implications for critically informing counseling interventions, healthcare, and public policy.

Figure 2.0 Provisional Conceptual Model of Substance Use among African American Men



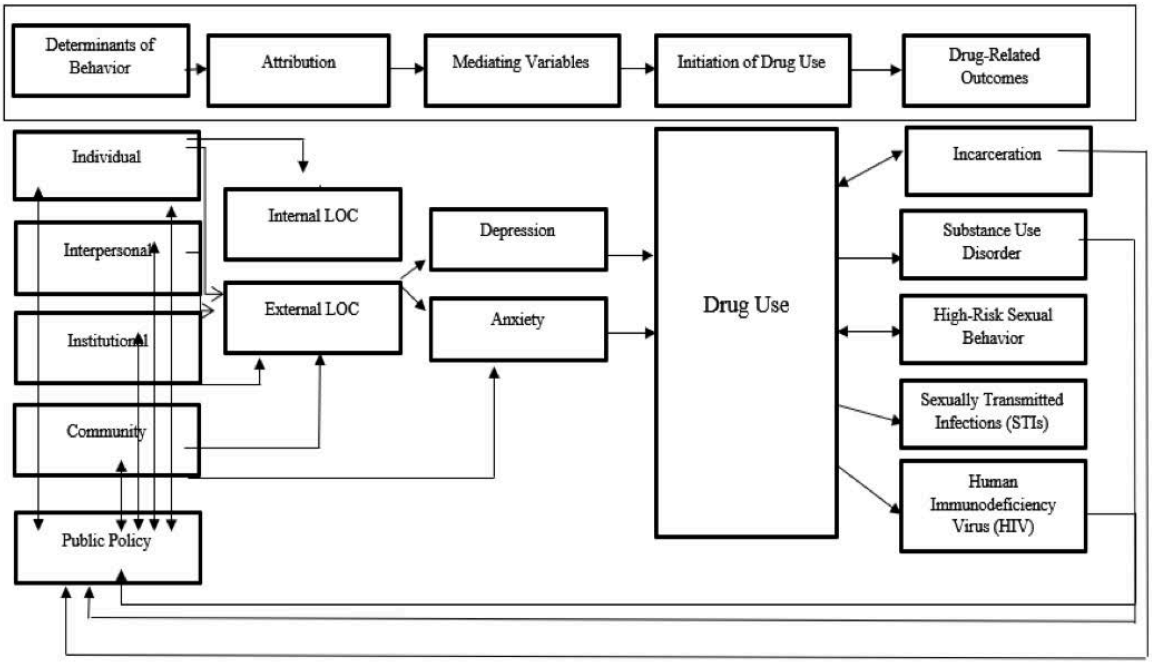
Note: (*) and **Bolded** items represent unique considerations of substance use among African American men.

Figure 2.1 Provisional Conceptual Model of Substance Use among African American Women



Note: **(*)** and **BOLDED** items represent unique considerations of substance use among African American women.

Figure 2.2 Substance Use among African Americans



CHAPTER 3

Nonmedical Opioid Use among Criminal Justice-Involved African American Men

The Centers for Disease Control and Prevention has deemed nonmedical prescription drug use an epidemic in the United States (CDC, 2017a). Nonmedical opioid use, defined as ingesting controlled substances not prescribed to the user or using for non-medicinal purposes (Hughes et al., 2016), is especially high with an estimated 12.5 million Americans reporting consumption of prescription opioids or heroin, in the past year (Substance Abuse and Mental Health Services Administration, [SAMHSA], 2017). Nonmedical prescription opioid use among African Americans is 3.9% compared to 4.5% among Caucasians (SAMHSA, 2017), indicating African Americans have similar patterns of nonmedical opioid use as Caucasians. However, studies examining nonmedical opioid use among African Americans is limited. Further, African Americans are disproportionately represented among the incarcerated (Carson & Anderson, 2016), have higher rates of substance use compared to national averages (SAMHSA, 2016), increased risk of having a co-occurring mental illness (SAMHSA, 2017), and are likely to return to urban communities with high accessibility to prescription opioids and heroin, through illegal drug trade sources (Draus, Roddy, & Greenwald, 2012; Drug Enforcement Agency [DEA], 2013). Collectively, these findings suggest criminal justice-involved African Americans have significant risk factors for nonmedical opioid use, that is not well-captured in extant literature.

Despite the potential for accidental overdose and mortality (CDC, 2017a; O'Donnell et al., 2017), examining nonmedical opioid use at the intersection of race and criminal justice status is rare. Extant findings are centered almost exclusively on Caucasians in rural areas (Brown, Goodin, & Talbert, 2017; Love, Cohn, Pierce, &

Hastings, 2016), community-based samples (e.g. Al-Tayyib et al., 2016; Macmadu et al., 2017; Votaw et al., 2017), and adolescents (Lin, Walton, Bonar, & Blow, 2016; Palamar, Shearston, Dawson, Mateu-Gelabert, & Ompad, 2016). The current paper contributes to the literature by examining trends and mental health related correlates of nonmedical opioid use among criminal justice-involved African American men, using the availability-proneness theory of opioid addiction, (Smart, 1980) as a guiding framework. Specifically, we investigated statistical trends in nonmedical opioid use. We also examined if depression, anxiety, and using prescription drugs to attenuate mental health symptoms were related to nonmedical opioid use. Findings from this study may be used to inform culturally-sensitive prevention efforts and interventions for this subgroup.

Availability-Proneness Theory of Addiction

The availability-proneness theory posits opioid use occurs within a psychosocial context and has implications for criminal justice involvement (Smart, 1980). The first component is availability which is defined by the social context in which nonmedical opioid use is accessible (Smart, 1980). The second component is proneness, operationalized as individual or psychosocial risk factors that increase likelihood of psychological symptoms and consequential opioid use and criminal behavior (Smart, 1980). The availability-proneness theory (Smart, 1980) suggests African Americans with greater psychosocial risk factors may be more likely to experience psychological distress, subsequent opioid use, and criminal justice-involvement. Though extant research using the theory is limited, a structural equation model indicated the availability and proneness constructs indirectly and directly significantly predicted nonmedical prescription opioid use among other marginalized groups (Rigg & DeCamp, 2014). Collectively, these

findings suggest the availability-proneness theory of addiction is a suitable paradigm from which nonmedical opioid use can be examined among criminal justice-involved African American men and will be used as a premise for the current study.

Availability and trends in nonmedical opioid use

The first component of the availability-proneness theory focuses on the convenience in which users can obtain opioids (Smart, 1980). Recent data suggests prescription opioids (e.g. (DEA, 2013) and heroin (Draus et al., 2012) are particularly easy to acquire in African American communities. Despite systemic efforts to reduce accessibility (DEA, 2013; Santos, 2013), trends in nonmedical prescription opioid use among Americans 12 or older, have gradually decreased since 2010 (Center for Behavioral Health Statistics and Quality [CBHSQ], 2015), while trends in heroin use have gradually increased since 2010, among the general population (SAMHSA, 2017). These trends are perplexing and warrant further investigation. Further, the National Survey on Drug Use and Health reports (CBHSQ, 2015; SAMHSA, 2017) are populated on community-based samples and do not include incarcerated individuals. Given African American males significant likelihood of being involved in the criminal justice system (Carson & Anderson. 2016), and limited opportunity to participate in population-based surveys, it is likely national statistics underestimate nonmedical opioid use among this subgroup, which have historically been disproportionately impacted by substance use and related psychosocial risk factors (e.g. socioeconomic disadvantage and mental health concerns) (Executive Office of the President of the United States, 2016; SAMHSA, 2017).

Proneness to use: sociodemographic correlates of nonmedical opioid use

Overall, aggregate data suggests, a proneness to engage in nonmedical opioid use is intertwined within a sociodemographic context related to age, education, and employment status, though these findings are mixed. Specifically, national estimates have revealed among African Americans, those under age 25 have the highest rates of nonmedical prescription opioid use (CBHSQ, 2017). National findings have been replicated by cross-sectional studies and have found younger age, college attendance, and unemployment is significantly associated with nonmedical opioid use among convenience samples of African Americans (Agnich, Stogner, Miller, & Marcum, 2013). Conversely, others have found older age (Broz & Ouellet, 2010; Liebschutz et al., 2010), having less than a high school education (Broz and Ouellet, 2010), lack of employment (Green et al., 2010), and criminal justice-involvement (Broz & Oullet, 2010; Liebschutz et al., 2010) are significantly related to nonmedical opioid use among community-based subgroups of African Americans. Notably, the psychosocial context in which African American men attending college and those with criminal justice histories are exposed, may differ, and account for the mixed findings. The inconsistent findings also suggest studies using exclusive samples of African Americans are needed to adequately capture the risk of nonmedical opioid use at the nexus of sociodemographics and criminal justice status. Yet, the dearth of literature examining nonmedical opioid use among criminal justice-involved African Americans offers little with regards to resolving these discrepancies. Consequently, the psychosocial context in which nonmedical opioid use among criminal justice-involved African Americans is largely unclear.

Mental health and nonmedical opioid use

Examining historical data offers some direction in clarifying current gaps in the literature. Previously, the psychosocial context in which substance use exists, more generally, has been linked to mental illness among criminal justice-involved African Americans (Calcaterra, Beaty, Mueller, Min, & Binswanger, 2014; Western, Braga, Davis, & Sirois, 2015). More specific to nonmedical opioid use, cross-sectional studies (Davis, Lin, Liu, & Sites, 2017), meta-analyses (Fischer, Lusted, Roerecke, Taylor, & Rehm, 2012), secondary analyses of population-based surveys (Ashrafioun, Bishop, Conner, & Pigeon, 2017), and path analysis (Martins et al., 2012) have revealed individuals who engage in nonmedical opioid use are significantly more likely to have mental health problems. Other scholars have posited nonmedical opioid use may be engaged to attenuate psychological distress (Martins et al., 2009; Martins et al., 2012). Though extant research illustrates a convincing relationship between mental health concerns and nonmedical opioid use among community-based individuals, little remains known about how this association potentially manifests among criminal justice-involved African Americans. Given the associated increased risk of suicide (Ashrafioun et al., 2017), accidental overdose (O'Donnell et al., 2017; Yarborough et al., 2016), and substantial health and criminal justice costs (Birnbaum et al., 2011; Kirson et al., 2017), future research with this subgroup is vital to sustaining public health.

The current study is novel because it is the first known study to quantitatively examine nonmedical opioid use and mental health among an exclusive sample of African American men in the criminal justice system. African American men returning to the community from prison may be particularly at risk given their increased likelihood of: a)

accessibility of prescription opioids and heroin in their respective communities (DEA, 2013; Draus et al., 2012); b) socioeconomic disenfranchisement (e.g. convicted felon, Black race) (e.g. Wildeman & Wang, 2017), associated psychological distress (Martins et al., 2012; Spaulding et al., 2009); and c) possible proneness to use opioids to cope (Rigg & DeCamp, 2014; Smart, 1980). The purpose of the current study is two-fold: 1) to examine trends in nonmedical opioid use; and 2) identify sociodemographic and mental health correlates of nonmedical opioid use among African American men in corrections-based drug treatment. The results of this study have implications for addressing the current opioid epidemic (CDC, 2017a) and developing culturally-relevant treatment interventions.

We hypothesized the following:

1) There will be a significant positive linear trend in nonmedical opioid use across five cohorts of African American men in corrections-based drug treatment.
2) Sociodemographic and mental health factors will be significantly correlated with nonmedical opioid use among a sample of African American men in corrections-based drug treatment. Specifically:
    a. Age and years of education will be significantly positively correlated with nonmedical opioid use. Having full-time or part-time employment, compared to being unemployed prior to incarceration, will be significantly negatively associated with nonmedical opioid use.
    b. Depression and anxiety symptoms will be significantly positively associated with nonmedical opioid use.

c. Using prescription drugs to attenuate mental health symptoms will be significantly positively associated with nonmedical opioid use.

Method

Secondary data for the current study was analyzed across five cohorts of African American men participating in the Criminal Justice Kentucky Treatment Outcome Study (CJKTOS; see Staton-Tindall et al., 2009; Staton-Tindall et al., 2011, for additional detail). The parent study investigated substance use-related outcomes among participants enrolled in corrections-based drug treatment in prison, jail, or in the community (e.g. half-way house). Participants in the current study were nearing community re-entry and completed psychosocial intake interviews between 2010 and 2014, which served as the baseline data. All data were obtained using a secured web-based program at treatment entry. The study was approved by the University of Kentucky Medical Institutional Review Board and Kentucky Department of Corrections.

Study participants

Between 2010 and 2014, 22,336 individuals entered and completed a treatment intake assessment in a Kentucky corrections or community corrections-based treatment facility. Participants who self-identified as male and African American were selected for the current study (n = 4,021). The sample size varied by cohort, from 2010 (n = 323), 2011 (n = 952), 2012 (n = 1,109), 2013 (n = 1,132), to 2014 (n = 505). All participants were under correctional supervision at the time of data collection.

Dependent variable: nonmedical opioid use

The primary outcome was whether the participant engaged in nonmedical opioid use. Participants were asked, “In the 12 months prior to this incarceration have you

used… [opioids] not prescribed for you?" Similarly, participants were asked, "In the 12 months prior to this incarceration have you used heroin?" Respondents were prompted to respond "yes" or "no" for each substance. The frequency count from both items were summed to measure nonmedical opioid use. These items were derived from the Addiction Severity Index, Fifth Edition (ASI-5; McClellan et al., 1992).

Independent variable: Statistical trends in use

To examine trends in nonmedical opioid use by cohort, the year in which the participant completed the baseline interview, was used as the primary independent variable. Specifically, baseline data collected from years 2010, 2011, 2012, 2013, and 2014 were examined in relation to trends in nonmedical opioid use. Date of intake interview was transformed into year and dummy-coded resulting in cohort year, whereas *2010* = 0, *2011* = 1, *2012* = 2, *2013* = 3, and *2014* = 4.

Covariates

Cohort year, age, years of education, and employment were entered as control variables in the regression analysis examining correlates of nonmedical opioid use. Cohort year was dummy-coded as aforementioned and 2010 was used as the reference category. Age was measured as a continuous variable. Years of education was measured as a continuous variable, with 12 years of education being equivalent to a high school diploma or its equivalent. Employment was assessed as an ordinal variable and dummy coded to assess differences across status, from 0 = *unemployed*, 1 = *full-time*, 2 = p*art-tim*e, and 3 = *occasional/seasonal*, to 1= *full-time*, 2 = *part-time or seasonal*, and 3 = *unemployed* (reference category).

Independent variables: multivariate regression

Depressive symptoms, anxiety symptoms, and using prescription drugs to attenuate mental health concerns were examined as primary independent variables in relation to nonmedical opioid use.

Depressive symptoms. To examine depression, participants were asked to respond "yes" or "no" to the following question: "In the 12 months prior to incarceration did you have a two-week period when you were consistently depressed or down, most of the day, nearly every day?"

Anxiety symptoms. To examine anxiety symptoms, participants were asked to respond "yes" or "no", "In the 12 months prior to incarceration, did you have a period lasting 6-months or longer where you were worried or were anxious about multiple things on more days than not (likely family, health, finances, school, or work difficulties)?"

Attenuation of mental health symptoms. A single item from the Stress Related Health Consequences Scale was used to assess consumption of prescription drugs to attenuate mental health symptoms (Logan and Walker, 2010). Participants were prompted, "How often did you experience the following: used prescription drugs to reduce stress, anxiety, worry, or fear?" The summed responses were significantly positively skewed, despite transformations and recoded from 0 = *none of the time*, 1 = *a little of the time*, 2 = *some of the time*, 3 = *good amount of the time*, 4 = *most of the time*, and 5 = *all of the time* to 0 = *never* to 1 = *used any amount of time* (Tabachnick & Fidell, 2007).

Statistical analyses

A series of descriptive, nonparametric, *t* tests, bivariate, and multivariate analyses were conducted. Chi-square tests and one-way ANOVA's were conducted to examine cohort differences. To examine frequencies in use by cohort year, nptrend commands were executed. Pearson correlation coefficients were used to examine the association between continuous variables. Spearman rho correlation coefficients were used to determine relationships between dichotomous variables. To examine trends, a fitted logistic regression model was executed to analyze cohort (year) stratified time trends with nonmedical opioid use as the dependent variable. To examine psychosocial correlates of nonmedical opioid use, stepwise logistic regression analyses were conducted with covariates entered in step one and mental health variables added in step two. Missing data was accounted for using list-wise deletion for a final *N* of 4,021. All analyses were conducted using STATA 12 (StataCorp., 2011).

Results

Descriptive statistics for sociodemographic variables are outlined in Table 1. Participants ranged in age from 18.49 to 74.46 (M_{age} = 36.02, *SD* = 9.73). Years of education varied from 2.00 to 20.00 (*M* = 13.25, *SD* = 1.88), with 12 representing a high school diploma or its equivalent. Most of the sample was unemployed prior to incarceration (41.7%), 39% reported being employed full-time, and 19.2% had part-time or seasonal employment. Twenty eight percent of the sample reported depressive symptoms and 34.1% reported anxiety symptoms. Slightly over 28% of our sample reported using prescription drugs to manage mental health symptoms.

Trends in nonmedical opioid use

Across cohorts, 20.5% of participants reported nonmedical opioid use (see Figure 1 for use by year). The fitted logistic regression model (see Table 2) revealed a significant trend in nonmedical opioid use across the five cohorts, *(Log Likelihood* = -2035. 29, $p < .05$). The quadrant and squared models were not significant. The final model revealed a positive linear relationship between cohort year and nonmedical opioid use. Specifically, every one-year increase in cohort was associated with 1.08 increased odds of nonmedical opioid use.

Cohort differences

Results from the chi-square analyses did not reveal significant cohort differences in nonmedical opioid use. The one-way ANOVA revealed, on average, each successive cohort was younger, F (4, 4016) = 10.43, p <.001. There were significant age differences between 2010 (M_{age} = 37.94) and 2013 (M_{age} = 35.14); 2010 (M_{age} = 37.94) and 2014 (M_{age} = 34.52); 2011 (M_{age} = 36.85) and 2013 (M_{age} = 35.14); 2011 (M_{age} = 36.85) and 2014 (M_{age} = 34.52); and 2012 (M_{age} = 36.26) and 2014 (M_{age} = 34.52). There were no significant cohort differences related to years of education or employment status.

Correlations between sociodemographics, mental health, and opioid use

To examine bivariate associations, spearman rho correlations for nonmedical opioid use are displayed in Table 3. The results revealed several of the hypothesized associations were significant. Cohort year was positively correlated with nonmedical opioid use (r = .03, p <.05). Age (r = -.10, p <.01) was negatively correlated with nonmedical opioid use. Years of education (r = .04, p <.01) was positively correlated with nonmedical opioid use. Depressive symptoms (r = .12, p<.01), anxiety symptoms

(*r*= .13, *p* <.01), and using prescription drugs to attenuate mental health symptoms (*r* = .43, *p* <.01) were significantly positively correlated with nonmedical opioid use.

Multivariate regression analyses: covariates, mental health, and opioid use

The stepwise logistic regression model (Table 4) was significant (*Log Likelihood* = 3319. 92, *p* <.001) and correctly classified 81.2% of cases of nonmedical opioid use. In step one, African American men in the 2011, 2012, 2013, or 2014 cohorts did not have significant odds of nonmedical opioid use, compared to participants in the 2010 cohort. For every one-year increase in age, participants were three times less likely to engage in nonmedical opioid use (*OR* = 0.97, 95% C.I: 0.96, 0.98, *p* < .001). For every one-year increase in education, participants were 1.06 times more likely to report nonmedical opioid use (*OR* = 1.06, 95% C.I: 1.00, 1.11, *p* < .05). Part-time and full-time employment, compared to unemployment, were not significantly associated with nonmedical opioid use. In step two, the association between age (*OR* = 0.97, 95% C.I: 0.96, 0.98, *p* < .001), education (*OR* = 1.05, 95% C.I: 1.01, 1.10, *p* < .05), and nonmedical opioid use remained significant. Every one-unit increase in depressive symptoms was associated with 1.27 increased odds of nonmedical opioid use (*OR* = 1.27, 95% C.I: 1.03, 1.55, *p* < .05). Every one-unit increase in anxiety symptoms was associated with 1.43 increased odds of nonmedical opioid use (*OR* = 1.43, 95% C.I: 1.17, 1.73, *p* < .001). Finally, participants who used prescription drugs to attenuate mental health symptoms had 8.25 increased odds of nonmedical opioid use, compared to participants that did not use prescription drugs to self-manage psychological concerns (*OR* = 8.25, 95% C.I: 6.92, 9.82, *p* < .001).

Discussion

The current study is the first known investigation of nonmedical opioid use among criminal justice-involved African American males. The availability-proneness theory of addiction (Smart, 1980) was used as the guiding framework to discuss sociodemographic and mental health correlates of nonmedical opioid use. Rates of nonmedical opioid use were 20.5% among our sample. Our estimates are commensurate with national rates among community based-samples illustrating 4.4% of Americans age 12 or older engaged in nonmedical opioid use in 2016 (SAMHSA, 2017).

Our first hypothesis was confirmed and revealed noteworthy findings. Specifically, significant positive linear trends were observed in nonmedical opioid use across five cohorts of African American men in corrections-based drug treatment. This finding is somewhat unique in that national estimates indicate nonmedical prescription opioid use has declined over time and heroin use is rising among community-based (CBHSQ, 2015; SAMHSA, 2017) and predominantly Caucasian samples (Cicero, Ellis, Surratt, & Kurtz, 2014). This suggests African American men involved in the criminal justice system may encounter unique sociodemographic and psychosocial risk factors, which are not being captured in extant literature, conceptualizing nonmedical opioid use as a 'White problem' in suburban (Cicero et al., 2014) and rural areas (Love et al., 2016). These psychosocial risk factors may include: re-entry stress (Baron, Draine, & Salzer, 2013; Lee, Harding, & Morenoff, 2017), mental illness (Broz & Oullet, 2010; James & Glaze, 2006), homelessness (Nyamathi et al., 2014), and poverty (Bright, 2012). African American males psychosocial risk combined with the high accessibility of opioids in urban communities (e.g. Draus et al., 2012) is concerning and has implications for

increased risk of accidental overdose (CDC, 2017a), suicidality (Ashrafioun et al., 2017), contraction of HIV, Hepatitis C (CDC, 2017b; Spaulding et al., 2009), recidivism, and significant public health costs (Birnbaum et al., 2011).

Our findings also indicate nonmedical opioid use among African American men involved in the criminal justice system has continued to rise despite the public health implications and a host of systemic interventions, including: the dissemination of pill mills in Florida and Georgia (DEA, 2013; Santos, 2013), the enactment of House Bill One (Commonwealth of Kentucky, 2012), implementation of prescription electronic reporting systems (Commonwealth of Kentucky, 2017), and the development of abuse-deterrent reformulations of Oxycontin and Opana (Cassidy et al., 2014; Katz, 2008). These findings suggest the social context may be a moderating factor in nonmedical opioid use among criminal justice-involved African Americans.

More specifically, national statistics suggest prescription opioids are often obtained from family and friends for free (SAMHSA, 2017). African Americans who engage in nonmedical opioid use may be able to do so without being detected by healthcare professionals and bypass the aforementioned interventions (i.e. prescription electronic monitoring systems). However, as their addiction progresses they may become more prone to engage in criminal behavior and consequently, involved in the criminal justice system. Alternatively, socioeconomic disenfranchisement could lead to criminal behavior which often co-occurs with substance use and criminal justice involvement (Mahaffey, Stevens-Watkins, & Leukefeld, 2017); resulting in significant psychological distress and a potentially cyclical pattern of use (Baillargeon et al., 2009; Baillargeon et al., 2010). Collectively, these findings lend support to explaining rising trends in

nonmedical opioid use among our sample and illuminate a sophisticated and multi-layered public health issue, that extends current literature specific to race and criminal justice status.

The second hypothesis was also largely supported. Consistent with national data (SAMHSA, 2017), we found older men were less likely to report nonmedical opioid use in the multivariate model. This finding is supported by research concluding older individuals were more likely to initiate opioid use with heroin compared to their younger counterparts whose use began with prescription opioids (Cicero et al., 2014). The relationship between age and nonmedical prescription opioid use may be further explained by findings related to education. In our study, men with more years of education had increased odds of engaging in nonmedical opioid use. For instance, Peters and colleagues (2007) found nearly 60% of males in their predominantly African American college student sample, reported use of promethazine and codeine cough syrup (sedative and opioid) to achieve euphoria, and 25% to self-medicate or cope. Though most of our sample was incarcerated, on average, men had obtained at least one year of college or its equivalent. This suggests men who sought higher education may have had greater access to and subsequent use of opioids. Alternatively, research suggests nonmedical opioid use (e.g. promethazine/codeine cough syrup) is particularly common among younger and college educated African Americans (e.g. Agnich et al., 2013; Peters et al., 2007). Though significant, age and education alone cannot fully explain the increased odds of nonmedical opioid use among this subgroup. Further examining the psychosocial context in which younger African American men with higher years of education and criminal justice-involvement are exposed may reveal more specific ways in which this subgroup is prone to nonmedical opioid use.

The underlying premise of the availability-proneness theory (Smart, 1980) conveys opioid use is predicated upon sociodemographic risk factors and mental health context. We found participants that reported symptoms of depression, anxiety, and using prescription drugs to attenuate mental health concerns were significantly more likely to engage in nonmedical opioid use. Our conclusions align with previous literature suggesting mental health symptoms are significantly correlated with nonmedical opioid use (Fischer et al., 2012; Kirson et al., 2017). The relationship between depressive symptoms, anxiety symptoms, and nonmedical opioid use may be explained in part by the re-entry process for men with histories of incarceration. Returning to the community is often a source of significant worry and nervousness (Patel et al., 2014) as men navigate the job market (Morenoff & Harding, 2014) and parole obligations with limited resources. Consequently, opioid use may be engaged to self-manage related psychological distress (Martins et al., 2012).

Limitations

Our study addresses a significant gap in the current literature but has some limitations. First, the current study targeted African American males involved in corrections-based drug treatment and the findings may not generalize to community-based Caucasian samples. Second, the study was cross-sectional. Third, participants were queried about nonmedical opioid use in the year prior to incarceration and subject to memory recall bias. Fourth, the item from the Stress Related Health Consequences Health scale did not specify if prescription drugs used to attenuate psychological distress, were consumed for nonmedical reasons (i.e. to achieve euphoria or not prescribe by a physician). Finally, though participants were asked about preferred method of drug administration, as proposed, we could not discern if injection drug use was specific to

nonmedical opioid use or another illicit substance.

Conclusion

Despite its limitations, our conclusions have implications for informing future science. Recruiting participants across social locations (i.e. gender, criminal justice status) could contribute to limited literature examining prevalence in nonmedical opioid use among other at-risk groups of African Americans. Our cross-sectional findings also provide preliminary data to further investigate the progression from nonmedical prescription opioid to heroin use. To this aim, future studies examining the role of intravenous use of opioids and HIV risk are also needed to address the unrelenting disproportionate rates of HIV among African Americans (CDC, 2017c). Aggregate data from these efforts could lead to the development of culturally-adapted evidence based behavioral interventions, such as cognitive behavioral therapy, that address comorbidity, re-entry stress, and supports coordination between community-based services (National Institute on Drug Abuse, 2016). Establishing evidence-based interventions has public health implications in addressing the current epidemic, high mortality (CDC, 2017a; O'Donnell et al., 2017), and public health costs (Kisron et al., 2017), associated with nonmedical opioid use.

Table 3.0 Descriptive Characteristics. African American Men in Corrections-Based Treatment ($N = 4,021$)

				N (%)
Dependent Variables				
Nonmedical Opioid Use				823 (20.5)
Independent Variables				N
Cohorts				
2010				323
2011				952
2012				1,109
2013				1,132
2014				505
Socio-Demographics	M	SD	Range	%
Age (years)	36.00	9.74	14.96-74.46	
Education (years)	13.27	1.88	2.00-20.00	
Employment				
Full-Time				39.0
Part-Time				19.2
Unemployed				41.7
Depressive Symptoms				28.0
Anxiety Symptoms				34.1
Using Rx to Attenuate Mental Health Symptoms	0.92	1.68	0.00-5.00	

Table 3.1 Summary of Fitted Logistic Regression to Measure Trends in Nonmedical Opioid Use across Five Cohorts *(N = 4,021)*

	OR (SE)	*95% CI*	*OR (SE)*	*95% CI*	*OR (SE)*	*95% CI*
Year	1.08 (0.37)*	[1.00, 1.15]	1.05 (0.13)	[0.82, 1.34]	1.19 (0.31)	[0.70, 2.01]
Year Squared			1.00 (0.02)	[0.95, 1.06]	0.93 (0.13)	[0.69, 1.24]
Year Cubed					1.01 (0.02)	[0.96, 1.05]
Model χ^2		4.84*		4.87		5.13
Nagelkerke R^2		0.00		0.00		0.00

*$p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 3.2 Correlates of Nonmedical Opioid Use among African American Men in Corrections-Based Drug Treatment *(N = 4,021)*

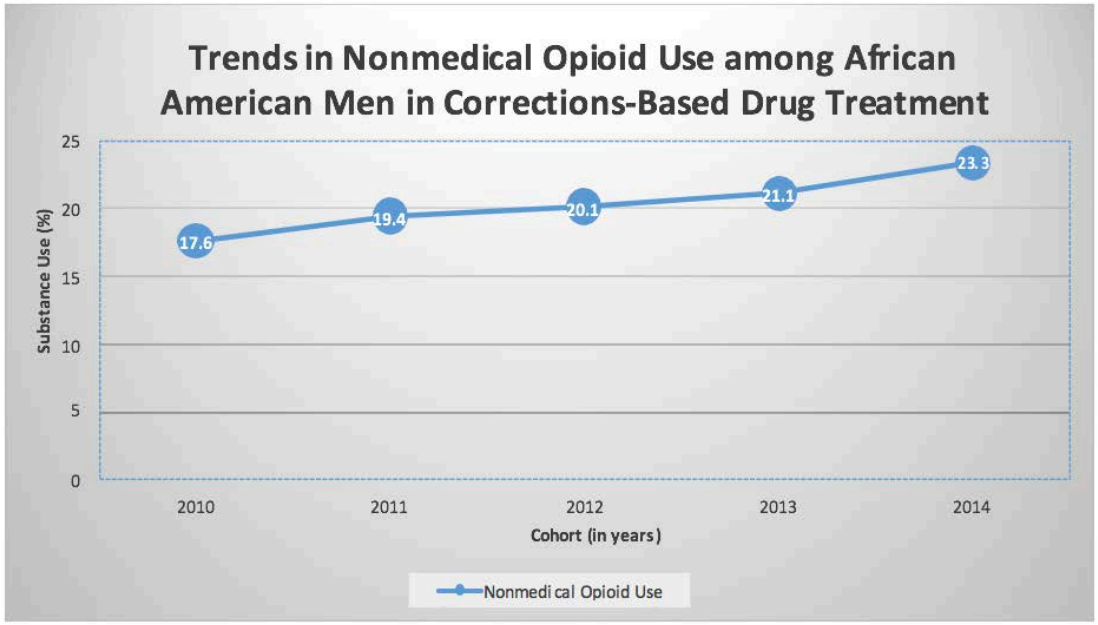
1) Opioid Use [a]	-							
2) Cohort [a]	.03*	-						
3) Age	-.10**	-.11**	-					
4) Education	.04**	.01	.07**	-				
5) Employment	-.00	.00	.09**	.07**	-			
6) Depressive Symptoms [a]	.12**	.00	.06**	.00	.01	-		
7) Anxiety Symptoms [a]	.13**	-.00	.03*	.02	.01	.42**	-	
8) Rx to Manage Mental Health [a]	.43**	-.02	-.10**	.00	-.02	.15**	.13**	-

Note. a = Spearman Rho coefficients reported; * = $p < .05$; ** $p \leq .01$ (two-tailed test); *** $p \leq .001$

Table 3.3 Summary of Logistic Regression Measuring Correlates of Nonmedical Opioid Use *(N = 4,021)*

	Model 1		Model 2	
	OR (SE)	*95% CI*	*OR (SE)*	*95% CI*
2011	1.03 (0.08)	[0.87, 1.22]	0.98 (0.09)	[0.82, 1.18]
2012	1.03 (0.05)	[0.92, 1.15]	1.02 (0.06)	[0.90, 1.15]
2013	1.03 (0.04)	[0.95, 1.12]	1.04 (0.04)	[0.95, 1.13]
2014	1.05 (0.03)	[0.97, 1.12]	1.06 (0.04)	[0.98, 1.15]
Age	0.97 (0.00)***	[0.96, 0.98]	0.97 (0.00)***	[0.96, 0.98]
Education	1.05 (0.02)*	[1.01, 1.10]	1.06 (0.02)*	[1.01, 1.11]
Part-time Employment	1.03 (0.05)	[0.93, 1.14]	1.03 (0.05)	[0.91, 1.15]
Full-time Employment	0.90 (0.09)	[0.76, 1.08]	1.05 (0.10)	[0.86, 1.27]
Depressive Symptoms			1.27 (0.10)*	[1.03, 1.55]
Anxiety Symptoms			1.43 (0.09)***	[1.17, 1.73]
Rx to Manage Mental Health			8.25 (0.08)***	[6.92, 9.82]
Model χ^2		54.12***		755. 89***
Nagelkerke R^2		0.02		0.27

Figure 3.4 Summary of Nonmedical Opioid Use among African American men in Corrections-Based Drug Treatment ($N = 4,021$)



CHAPTER 4

Psychosocial Predictors of Substance Use Treatment among Criminal Justice- Involved African American Women

National estimates suggest 2.1 million African American women engage in substance use (Substance Abuse and Mental Health Services Administration, [SAMHSA], 2016). Substance use disorders are particularly greater among females with histories of incarceration compared to those without criminal justice involvement (Mahmood, Vaughn, Mancini, & Fu, 2013). However, criminal justice-involved females are 52% less likely to receive substance use treatment compared to their male counterparts (Mahmood et al., 2013). Health disparities in substance use treatment among women are significantly associated with African American race, criminal justice status (Reisner, Bailey, & Sevelius, 2014; West, Vayshenker, Rotter, & Yanos, 2015), and low socioeconomic status (Moloney, van den Bergh, & Moller, 2009; Flores & Pellico, 2011). Some scholars posit health disparities remain pervasive due to a dearth of literature examining women's health issues (Braithwaite, Treadwell, & Arriola, 2005), few conceptual frameworks adequately incorporating social and contextual factors (Centers for Disease Control and Prevention, [CDC], 2013a; Gehlert et al., 2008), and limited studies examining longitudinal outcomes related to treatment use (SAMHSA, 2009) among criminal-justice involved African American women (Braithwaite et al., 2005). Therefore, the purpose of the current study is to examine psychosocial predictors of substance use treatment among African American women involved in the criminal justice system using the Behavioral Model for Vulnerable Populations (Gelberg, Andersen, & Leake, 2000) as the guiding framework.

Health services use framework

The original Behavioral Model outlined traditional predictors of health service use (Andersen, 1973) and was later modified to address psychosocial determinants among vulnerable populations (Gelberg et al., 2000). The model has three components: 1) *predisposing domain* which incorporates demographic traits and individual differences that predate onset of the illness or disease; 2) *enabling domain* encompasses resources or impediments to health service use; and 3) the *need* domain includes subjective or objective assessments indicating health services are required. The three domains are further distinguished by *traditional* and *vulnerable* sub-factors (Gelberg et al., 2000). *Traditional* sub-factors are common predictors of health service use (Gelberg et al., 2000). The *vulnerable* sub-component conceptualizes social and contextual factors that predict health service use among marginalized groups (Gelberg et al., 2000). African American women involved in the criminal justice system are considered vulnerable due to their race/ethnicity and increased likelihood of poor health outcomes (Gelberg et al., 2000; Lewis, Larson, McClurg, Boswell, & Fisher, 2012). Previous scholars have noted the utility of this framework in conceptualizing alternative health services among substance-using African American women (Oser, Bunting, Pullen, & Stevens-Watkins, 2016), which suggests the Behavioral Model for Vulnerable Populations is a suitable paradigm to investigate psychosocial determinants of health service use among this subgroup.

Predisposing traditional and vulnerable factors

Predisposing traditional factors, operationally defined as race, age, years of education, partner status, and being a parent has been significantly positively associated

with health service use. Studies with vulnerable samples of African Americans have revealed older age (McCabe & Arndt, 2012; Nowotny, 2015), and having the equivalent of a high school education (Nowotny, 2015) were significantly positively related to substance use treatment. Schütz and colleagues (1994) also found having a partner was significantly positively correlated with substance use treatment among injection drug users. Having a partner may mitigate the burden of balancing substance use treatment obligations and caretaking tasks. In contrast, women with the sole responsibility of caring for minor children may forego substance use treatment (Morse, Silverstein, Thoms, Bedel, & Cerulli, 2015; Taylor, 2010). Single parenthood and low socioeconomic status are further compounded by social and cultural-related barriers to substance use treatment (Guerrero, Marsh, Cao, Hee-Choon, & Andrews, 2014; Mendenhall, Bowman, & Zhang, 2013).

Criminal justice involvement, a *predisposing vulnerable* factor, comprises another social and culturally-specific factor related to African American women's engagement in substance use treatment. Extant literature suggests women involved in the criminal justice system are more likely to participate in substance use treatment (Nowotny, 2015). However, examining a history of incarceration in isolation of other contextual factors may be counterintuitive in predicting substance use treatment. Though women in prison or on probation have criminal justice histories, they do not represent a homogenous group (Golder et al., 2014). For example, incarcerated women may have their sentences converted to conditional supervised release or parole (Golder et al., 2014). Women on probation are categorized as being on community supervision and may not have histories of imprisonment (Golder et al., 2014). Literature suggests prisoners and probationers

have unique barriers that are specific to each group related to substance use, access to drug treatment services, and parental obligations (Carlson, Shafer, & Duffee, 2010; Evans, Jaffe, Urada, & Anglin, 2012; Friestad, Ase-Bente, & Kjelsberg, 2014; Oser, Knudsen, Staton-Tindall, Taxman, & Leukefeld, 2009). Exploring *predisposing*, *enabling*, and *need* factors associated with substance use treatment among criminal justice involved women compared to their community-based counterparts, may have significant implications for informing treatment with vulnerable populations (Dumont, Gjelsvik, Redmond, & Rich, 2013; Golder et al., 2014).

Criminal justice status represents one of a myriad of *predisposing vulnerable* factors embedded in the psychosocial context in which substance use treatment is considered among African Americans. Though generalized to health service use, previous research has concluded homelessness (National Coalition for the Homeless, 2009), religiosity (Lukacho, Meyer, & Hankerson, 2015), ethnic identity (Lee, Matejkowski, & Han, 2017), and perceived racism (Bird, Bogart, & Delahanty, 2004) are significantly negatively correlated with treatment use among African Americans. Chandler (2010) argued economic deprivation and perceived racism discourages use of traditional health services among African Americans with a keen sense of connectedness with Afrocentric values and beliefs. In turn, African Americans may become reliant on religiosity to manage significant concerns and underutilize traditional health services (Chandler, 2010). These findings indicate African American women who closely identify with culturally laden values may be less likely to engage in substance use treatment. However, existent literature has rarely examined the role of religiosity, ethnic identity, and perceived racism in relation to substance use treatment among African Americans. Consequently, these areas remain underdeveloped *predisposing vulnerable* variables.

Literature examining trauma, a *predisposing vulnerable* factor, is better documented among African Americans (Long & Ullman, 2016; Socie, Duffy, & Erskine, 2012). Specific to criminal justice involved women, Staton-Tindall and colleagues (2013) found 86% of their substance-using sample identified loss of a job as the most common traumatic experience. Other scholars have noted childhood abuse (Zapolski, Baldwin, & Lejuez, 2016) and domestic violence are frequently endorsed traumatic experiences among African American women with substance use concerns (Illangasekare, Burke, McDonnell, & Gielen, 2013). Our study seeks to extend the literature by examining predictors of substance use treatment among a subgroup of women more likely to have histories of trauma (Lynch, DeHart, Belknap, & Green, 2013).

Enabling traditional and vulnerable factors

The impact of traumatic experiences may be offset by access to *enabling traditional* factors, operationalized as income, health insurance, usual place of care, and social support. Recent literature illustrates low income African Americans remain disproportionately represented among individuals without employer based insurance, Medicaid, or Medicare (Buchmueller et al., 2016). Some estimates suggest nearly 90% of individuals involved in the criminal justice system are uninsured (Wang, White, Jamison, Goldenson, Estes, & Tulsky, 2008), which impedes access to a usual place of care (Fink, Lindsay, Slymen, Kral, & Bluthenthal, 2013), and referral to substance use treatment (NIDA, 2014, Grella, Marsh, Cao, Hee-Choon, & Andrews, 2009). African American women may rely on family and friends for recommendations in the absence of a formal referral source or primary care physician. However, research is mixed noting social support can be an encouraging source (Miller, Meyers, & Tonigan, 1999) or an

impediment to substance use treatment (Kuo et al., 2013; Sterk, Elifson, & Theall, 2000).

African American women involved in the criminal justice system are often faced with a host of impediments to services or *enabling vulnerable* factors, including perceived barriers to care and trust in physicians. The relationship between perceived barriers to care and substance use treatment has been studied less often among vulnerable populations. Among studies found, affordability (Keen, Whitehead, Clifford, Rose, & Latimer, 2014; Sterk et al., 2000), limited access to care, unavailable childcare services (Sterk et al., 2000), fear of arrest or prosecution, and lack of trust in physicians were perceived barriers to substance use treatment among women (Jessup, Humphreys, Brindis, & Lee, 2003). Culturally specific perceived barriers to care are also embedded in the client-provider relationship. Historically, African Americans have lacked trust in physician's due to a host of unethical practices committed in healthcare settings (CDC, 2013b) and receipt of less than quality care (U.S. Department of Health and Human Services, [DHHS], 2001). Researchers suggest trust in healthcare providers is an essential component of treatment use. Guerrero and colleagues (2014) found trust in physicians was positively significantly associated with sustained participation in substance use treatment among a sample of 1,812 African Americans in the National Treatment Improvement Study. Inversely, other studies have noted a lack of trust in physicians is significantly negatively related to substance use treatment among African American women (Roberts & Nishimoto, 2006). Given the historical and current cultural climate, it is imperative for psychologists to examine the association between trust in physicians and substance treatment among vulnerable African American women

Marginalization associated with race/ethnicity, socioeconomic status, and lack of trust in healthcare providers may be counteracted by active coping, another *enabling vulnerable* factor. The premise of John Henryism Active Coping (JHAC; James, 1996) suggests African Americans with limited social and economic resources, chronically endure *predisposing* and *enabling* stressors, and rely on tenacity and dedication to defeat hardship. Previous studies have examined JHAC in relation to general health concerns (e.g. Dressler, Bindon, & Neggers, 1998; Light et al., 1995) but rarely substance use treatment. A study by Stevens-Watkins and colleagues (2016) is the only known investigation of JHAC and substance use treatment among African Americans. Researchers found JHAC was associated with decreased likelihood of substance use treatment among African American women involved in the criminal justice system and suggested longitudinal data was needed to further examine culturally specific predictors of treatment (Stevens-Watkins et al., 2016). The current study builds upon the literature by investigating JHAC as a predictor of substance use treatment among African American women with an assessed need.

Need traditional and vulnerable factors

Substance use is a salient *need traditional* factor warranting treatment (NIDA, 2016) and commonly co-occurs with *need vulnerable* factors, or mental health symptoms (e.g. Scott, Dennis, & Lurigio, 2015; Sosulski & Woodward, 2013). National surveys estimate over 8 million adults experience symptoms of depression and anxiety in conjunction with a substance use disorder (SAMHSA, 2014). Substance use, depression, and anxiety are significantly more common among women with histories of incarceration (Scott et al., 2015). For example, one study found 50% of female detainees endorsed symptoms of depression and 19% reported anxiety symptoms (Scott et al., 2015).

Over 75% of the sample had a current substance use disorder and mental health disorder at baseline (Scott et al., 2015). Comorbidity complicates treatment use (NIDA, 2010) and is further compounded by the changing needs of criminal justice-involved women (NIDA, 2014a). However, *need factors* have been studied the least relative to other domains in the Behavioral Model for Vulnerable Populations. The current study will address limitations in the literature by investigating the association between mental health symptoms and the need for substance use treatment among a vulnerable group (NIDA, 2010).

The present study

The present study seeks to make a significant contribution to the literature by examining psychosocial predictors of substance use treatment with the Behavioral Model for Vulnerable Populations as the theoretical framework. Previous scholars have explored tenets of the model but rarely have African American women at the intersection of multiple marginalized statuses been examined (Oser et al., 2016). Investigating predictors of substance use treatment among criminal justice-involved women is imperative given increased risk of acquiring communicable diseases (CDC, 2012), public health costs (U.S. Department of Justice, [DOJ], 2016), and long-term impact on overall health and well-being. The purpose of the present study is to examine *predisposing*, *enabling*, and *need* predictors of substance use treatment among criminal justice-involved African American within 18-months of the baseline interview.

The following hypotheses are supported by the Behavioral Model for Vulnerable Populations and extant literature.

H1) Predisposing and *enabling traditional* variables will be positively and negatively significantly predictive of substance use treatment at follow-up.

a. Older age, more years of education, and having a partner will be significantly associated with increased odds of substance use treatment. Having children will be significantly related to lower odds of substance use treatment (*predisposing*).

b. Higher income, having healthcare insurance compared to no insurance, a usual place of care, and perceived social support will be significantly associated with increased odds of substance use treatment (*enabling*).

c. Women who endorse substance use at baseline will be filtered out. Therefore, 100% of our sample will demonstrate a need for health services (*need*).

H2) Predisposing, *enabling*, and *need vulnerable* variables will be significantly negatively and positively predictive of substance use treatment at follow-up.

d. Being in prison or on probation compared to being in the community at baseline will be associated with increased odds of substance use treatment. Endorsements of homelessness, religiosity, ethnic identity, perceived racism, and a history of trauma will be significantly associated with lower odds of substance use treatment (*predisposing*).

e. Perceived barriers to care will be significantly related to lower odds of

substance use treatment. Trust in physicians and active coping will be significantly associated with increased odds of substance use treatment (*enabling*).

f. Depressive and anxiety symptoms will be significantly related to increased odds of substance use treatment (*need*).

H3) Predisposing, *enabling*, and *need* variables in the *vulnerable* sub-factor will correctly classify most of the cases of substance use treatment in the multivariate analyses.

Method

The current study is part of a nationally funded longitudinal project examining the intersection of health concerns, health service use, and criminality among African American women (n = 643). A purposeful sampling procedure was used to recruit African American, drug-using, and non-drug using women in the community (n = 206), in prison (n = 240), or on probation (n = 197). Recruitment procedures differed based on criminal justice status and can be reviewed in detail in previously published studies (Harp & Oser, 2016; Luke & Oser, 2015; Stevens-Watkins et al., 2016). Women in the community were recruited using public listings in local businesses, women's magazines, and transportation sites in areas with the highest concentration of African Americans in a southern city. Interested women were asked to call a toll-free number to be screened for eligibility. To be eligible for the community sample women could not have histories of incarceration. African American women in prison were identified using a roster provided by correctional staff of individuals scheduled for release within 60 days. These women were invited to an information session with research staff. Institutions with the highest

percentages of African American female inmates in a southern state were targeted to fill the prison sample. Women in the probation sample were approached and recruited from multiple district probation offices with the highest percentage of African Americans in the state. All participants met four eligibility criteria including: (1) self-identifying as an African American woman, (2) being at least 18 years of age, (3) English speaking, and (4) being willing to participate. Women who met eligibility criteria completed an individualized standardized interview in a private room to ensure confidentiality. To address the aim of the current study, participants who: a) self-reported drug use at baseline, b) were released from prison and completed the 18-month follow-up interview, and c) free at least 30 days within 6 months of release, and capable of engaging in substance use treatment, were selected. Baseline data was derived from Wave 1 and responses obtained in Wave 2, Wave 3, and Wave 4 were used to measure outcomes.

Informed consent was obtained from all participants at baseline. Data was collected by trained African American female interviewers using the Computer Assisted Personal Interviewing (CAPI) software. The study was approved by the Institutional Review Board and participants received $20 for the baseline interview (Wave 1) and $25 for each subsequent 6-month follow-up interview (Wave 2, Wave 3, and Wave 4). Detailed locating information was collected from participants at the baseline interview, resulting in an 87.6% 18-month follow-up rate.

Measures

Substance use treatment. The dependent variable was operationally defined as substance use treatment at any point since baseline (Waves 2-4). Participants were asked "Have you participated in alcohol or drug treatment… [in the past 6 months since release; in the past 6 months]?" Women were prompted to answer "yes" or "no." Respondents

who completed the follow-up interviews on probation or parole were asked the former question and those in the community were asked the latter. The answers were summed to create the dependent variable.

Consistent with the Behavioral Model for Vulnerable Populations (Gelberg et al., 2000), independent variables in the current study are categorized as *predisposing*, *enabling* and *need* factors (see Figure 1). Each variable is further specified as a *traditional* or *vulnerable* sub-factor. The *predisposing traditional* factors are age, years of education, partner status, and being a parent. *Predisposing vulnerable* factors are criminal justice status, homelessness, religiosity, ethnic identity, perceived racism, and history of trauma. The *enabling traditional* factors consisted of personal income, health insurance, usual place of care, and perceived social support. *Enabling vulnerable* factors comprised perceived barriers to care, trust in healthcare providers, and active coping. The *need traditional* factor is operationally defined as self-reported substance use at baseline. The *need vulnerable* factors are depression and anxiety symptoms.

Age, education, partner status, and being a parent. Age was assessed by number of years (M_{age} = 34.85, range: 18.00 – 59.00). Years of education is measured as a continuous variable, whereas 12 was a high school diploma or its equivalent (M = 11.89, range: 5.00- 20.00). Partner status was recoded from 1 = *married*, 2 = *living as married/common law*, 3 = *remarried*, 4 = *widowed*, 5 = *divorced*, 6 = *separated*, and 7 = *single* to 1 = *current partner* and 0 = *no partner.* One-fifth of the sample identified having a partner at baseline. Being a parent was operationally defined as total number of biological, adopted, foster, or stepchildren. On average, women reported having two children.

Criminal justice status, homelessness, and religiosity. Criminal justice status was dummy coded whereas community was the reference category with comparisons to prison and probation status. The samples were equally represented across criminal justice, with slightly more participants being in prison at baseline (38.4%). Participants were asked to indicate "yes" or "no" to the following question: "In the past 6 months, have you been homeless at any time? By homeless, I mean you were living on the street or in a shelter?" to assess homelessness. Over 20% of the sample endorsed being homeless within 6 months of the baseline interview. To measure religiosity, women were asked, "Do you consider yourself to be religious?" Religiosity was recoded from 0 = *not religious*, 1 = *a little religious*, 2 = *somewhat religious*, and 3 = *very religious* to 0 = *not religious* to 1 = *religious*. Most of the sample identified being religious (93.8%).

Ethnic identity. The Multigroup Measure of Ethnic Identity (MEIM) is a 14-item measure of a person's internalized sense of belonging to his/her ethnic group (Phinney, 1992). Sample items include: "I have a clear sense of my ethnic background and what it means for me" and "I participate in cultural practices of my own group, such as special food, music, or customs." Responses are rated on a four-point Likert scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. The Cronbach's alpha was 0.82 and summed item responses ranged from 13.00 to 48.00 (M = 39.24, SD = 5.94). Higher scores are indicative of a greater sense of ethnic identity.

Perceived racism. The Schedule of Racist Events (SRE) is a 17-item inventory of perceived racist events experienced by African Americans (Landrine & Klonoff, 1996). Sample items include, "How many times have you been treated unfairly by your *employers, bosses and supervisors* because you are African American?" and "How many times have you been *accused or suspected of doing something wrong* (such as stealing,

cheating, not doing your share of the work, or breaking the law) because you are African American?" Responses are rated on a six-point Likert scale from 1 = *this has never happened to you* to 6 = *this has happened almost all the time (more than 70% of the time)*. The Cronbach's alpha is 0.92 and summed item responses ranged from 17.00 to 96.00 (M = 32.35, SD = 13.73). The SRE was positively skewed and was transformed using a log 10 for data analyses (Tabachnick & Fidell, 2007). Higher scores reflect greater incidents of perceived racism.

History of trauma. A modified version of the 23-item Traumatic Life Events Questionnaire (TLEQ) was used to assess exposure to a broad range of traumatic events (Kubany et al., 2000). Questions referencing natural disasters and combat experience were omitted and replaced with questions about grief/loss, monetary crisis, and childhood sexual abuse. Sample items include "You were threatened with death or serious bodily harm" and "You had a major financial crisis." Responses are rated on a 7-point Likert scale, from 0 = *never* to 6 = *more than five times*. The Cronbach's alpha is 0.79 and summed item responses ranged from 1.00 to 87.00 (M = 30.42, SD = 17.76). Higher scores indicate more traumatic life events.

Income, insurance, and healthcare. Participants were queried "What was your personal income in the past 6 months from all legal sources before taxes?" Responses are categorized from 0 = $0 to 4,999 to 8 = $75,00 or more. Over 90% of our sample reported personal incomes under $20,000. Access to health insurance was measured by responses to the following question, "Which of the following best describes the types of health insurance or health programs you were covered by?" Item responses were originally coded 1 = *employer provided health insurance*, 2 = *personal health insurance*,

3 = *Medicaid*, 4 = *Medicare*, and 5 = *VA/CHAWUS* and dummy coded to 1 = *employer provided health insurance*, 2 = *Medicaid* or *Medicare*, and 3 = *uninsured* as the reference category. Most of the sample was uninsured. Usual place of care was measured using the following question "Is there one particular doctor or healthcare provider you usually see?" Responses were coded 0 = *no* and 1 = *yes*. Over 90% of our sample endorsed a usual place for healthcare.

Social support. The Multidimensional Scale of Perceived Social Support (MSPSS) is a 12-item inventory assessing perceptions of relationships with family, friends, and significant others (Zimet, Dahlem, Zimet, & Farley, 1988). Sample items include, "My family is willing to help me make decisions" and "I can talk about my problems with my friends." Responses are rated on 7-point Likert scale ranging from 1 = *very strongly disagree* to 7 = *very strongly agree*. The Cronbach's alpha was 0.91 and summed item responses ranged from 12.00 to 84.00 (M = 63.39, SD = 15.30). Higher scores suggest greater perceived social support.

Perceived barriers to care. Participants were asked to complete 28-items that measured perceived impediments to seeking or sustaining healthcare. Respondents noted "yes" or "no" to the following stem and sample items: "Are any of the following statements reasons why you didn't get healthcare or even an annual physical exam… [child care not available; fear of being refused healthcare]?" Answer items were summed to create the scale. The Cronbach's alpha was 0.84. Over 65% of the sample identified perceived barriers to care.

Trust in healthcare providers. The Trust in Physicians Scale (TiPS) was used to assess the respondent's belief that her provider is competent and reliable (Anderson & Dedrick, 1990). Sample items include: "I sometimes worry that my doctor may not keep the information we discuss totally private" and "My doctor is a real expert in taking care of medical problems like mine." Responses are rated on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Negatively worded items were reverse coded. The Cronbach's alpha was 0.86, and summed item responses ranged from 15.00 to 55.00 (M = 39.60, SD = 7.15). Higher scores are indicative of greater trust in physicians.

Active coping. John Henryism Active Coping scale is a 12-item measure of an individual's behavioral indicators to actively cope with psychosocial stressors (James, 1996). The scale was designed to assess African American's propensity to manage stressors in the interest of meeting personal goals (James, 1996). Sample items include: "In the past even when things got really tough, I never lost sight of my goals" and "I don't let my personal feelings get in the way of doing a job." Responses are rated on a five-point Likert scale ranging from 1 = *completely true* to 5 = *completely false*. The Cronbach's alpha was 0.75 and summed item responses ranged from 14.00 to 60.00 (M = 50.32, SD = 6.24). All items were reverse coded so higher scores are indicative of more active coping.

Mental health. Items measuring depressive and anxiety symptoms were derived from the Addiction Severity Index (ASI; McClellan et al., 1992). Respondents were asked "Have you had a significant period in your lifetime in which you have experienced [serious depression; anxiety or tension] for at least 2 weeks not a direct result of drug/alcohol use?" Responses were coded as 0 = *no* and 1 = *yes*. Over half the sample

endorsed depressive symptoms and 43.1% reported anxiety symptoms.

Data analytic strategy

A series of descriptive, chi square, ANOVAs, bivariate, and multivariate analyses were executed. Chi square and ANOVAs were conducted to analyze preexisting differences between groups. Pearson correlation coefficients were used to examine the association between continuous variables. Spearman rho correlation coefficients were used to examine relationships with dichotomous variables. The predisposing, enabling, and need variables that were significant at the bivariate level ($p < .05$) were retained for regression analyses. A total of 643 women completed the baseline interview. Consistent with the purpose of the study respondents who were self-identified drug users ($n = 395$) and free at least 30 days following release from prison (if applicable) ($n = 322$) were selected for analyses. Isolating women who were self-identified drug users at baseline met the *need traditional* component. One participant was withdrawn by the study team and another was deceased for a final N of 320. List wise deletion was used to account for missing data.

A hierarchical logistic regression analysis was conducted to examine predictors of substance use treatment among a sample of African American across criminal justice status. Variables were added to the model by domain and further specified by *traditional* or *vulnerable* status. The following variables were added to the model: *predisposing traditional* variables in step one, p*redisposing vulnerable* factors in step two, *enabling traditional* variables in step three, *enabling vulnerable* variables in step four, and *need vulnerable* factors in step five. All analyses were conducted using IBM SPSS 22.0.

Results

There were statistically significant differences across samples. Chi-square analyses revealed significant differences in substance use treatment across criminal justice status ($\chi^2 = 31.02$, $p < .01$). The greatest endorsements of substance use treatment were among the prison sample (48.3%). Results from the one-way ANOVA indicated, on average, women in the community obtained more years of education, F (2, 317) = 8.63, p <.001. Women who completed the baseline interview in prison, on average, endorsed more experiences of trauma, F (2, 317) = 8.79, p <.001.

Descriptive statistics indicated 55.0% of the respondents had substance use treatment within 18 months of the baseline interview (Table 1). Initial bivariate correlations illustrated several *predisposing*, *enabling*, and *need* factors were significant (Table 2). Age (r = .22, p <. 001) was positively related and education (r = -.28, p <. 001) was negatively associated with substance use treatment (*predisposing traditional*). Being in the community (r = -.31, p <. 001) or prison (r = .22, p <. 01) at baseline was negatively and positively correlated with substance use treatment, respectively. Recall of traumatic events (r = .32, p <. 001) was positively related with substance use treatment (*predisposing vulnerable*). Social support (r = -.19, p <. 01) was significantly negatively related to substance use treatment (*enabling traditional*). Greater perceived barriers (r = .18, p <. 01) and active coping (r = .14, p <. 01) were positively correlated with substance use treatment (*enabling vulnerable*). Endorsement of anxiety symptoms (r = .13 p <. 05) was positively associated with substance use treatment (*need vulnerable*). Partner status (*predisposing traditional*); homelessness, religiosity, ethnic identity, perceived racism (*predisposing vulnerable*); personal income, insurance status, usual place of care (*enabling traditional*), trust in physicians (*enabling vulnerable*), and depressive

symptoms (*need vulnerable*) were not significant at the bivariate level and excluded from further analyses.

The results of the hierarchical logistic regression model identifying predictors of substance use treatment at the 18-month follow-up are displayed in Table 3. Overall, the final model was significant (-2 *Log Likelihood* = 349.90, p <.001) and correctly classified 71% of the cases (χ^2 (9) = 90.50, p <.001). In the first step (*predisposing traditional*), age was associated with 1.04 increased odds of substance use treatment (95% C.I: 1.02, 1.07, p < .001). Women with more years of education were 17% less likely to have attended substance use treatment at follow-up (*OR* = 0.73, 95% C.I: 0.65, 0.83, p < .001). Being a parent was not significant after accounting for age and education. In step two, *predisposing vulnerable* variables were analyzed. Compared to the community sample, respondents from the prison sample were 1.43 times more likely to report substance use treatment (95% C.I.: 1.09, 1.86, p < .01). A history of trauma was significantly associated with a 1.03 increased odds of substance use treatment (95% C.I.: 1.02, 1.05, p < .001). In step three, social support was added but was not significant in the multivariate analyses (*enabling traditional*). In the fourth step, perceived barriers to care were significantly associated with a 1.12 increased odds of substance use treatment (*enabling vulnerable*) (95% C.I.: 1.02, 1.22, p < .05). Active coping was not significant in the regression model. In step five, a one unit increase in age (95% C.I.: 1.01, 1.06, p < .01), was associated with a 1.04 increased odds of substance use treatment. A one unit increase in years of education (*OR* = 0.76, 95% C.I.: 0.66, 0.86, p < .001), was significantly associated with a 24% decreased likelihood of substance use treatment. Being in prison at baseline, compared to the community (*OR* = 1.50, 95% C.I.: 1.14, 1.96, p < .001), significantly predicted a higher likelihood of substance use treatment. A one- unit

increase in a traumatic event (95% C.I.: 1.01, 1.05, $p < .001$), significantly predicted with a 1.03 increased odds of substance use treatment. Similarly, a one unit increase in perceived barriers (95% C.I.:1.01, 1.22, $p < .05$), significantly predicted a 1.12 increased odds of substance use treatment within the 18-month follow-up. After accounting for *predisposing* and *enabling* factors, anxiety symptoms (*need vulnerable*) were not a significant predictor in the final model.

Discussion

The current study contributes to the limited literature examining correlates and predictors of substance use treatment among African American women involved in the criminal justice system (Braithwaite et al., 2005; CDC, 2013a) using the Behavioral Model for Vulnerable Populations (Gelberg et al., 2000) as a conceptual framework. Among our sample of lower income and less educated African American women, endorsements of substance use treatment at the 18-month follow-up were high (i.e. 55%) and exceeded national estimates (NIDA, 2011). Additionally, over 70% of our sample met criteria for federal poverty (DHHS, 2017).

The first hypothesis was partially supported and several *predisposing traditional* variables significantly predicted substance use treatment. Older women were significantly more likely to endorse substance use treatment. Some scholars posit women tend to develop substance use disorders later in life (Randall et al., 1999), at which time treatment would be deemed necessary. We also found women with more years of education were less likely to endorse substance use treatment at follow-up. This finding was unexpected and difficult to explain given mixed findings in extant literature (Booth, Stewart, Curran, Cheney, & Borders, 2014; Crawford et al., 2014; Nowotny, 2015).

One explanation suggests acquiring more education can be protective against socioeconomic stressors common during re-entry (i.e. joblessness), consequential substance use (Calcaterra, Beaty, Mueller, Min, & Binswanger, 2014; Western, Braga, Davis, & Sirois, 2015), and need for treatment over time. An alternative explanation suggests formal education may have little bearing on healthcare knowledge and recognizing the need for treatment (Conner et al., 2010). African American women with limited healthcare knowledge may have more negative expectations related to discrimination and stigma, which can deter healthcare utilization (Conner et al., 2010). Collectively, these findings suggest the relationship between years of education and substance use treatment among criminal justice-involved African American women remains unclear and warrants further investigation.

Research examining partner status and being a parent is also mixed. Stahler and colleagues (2007) recruited a sample of predominantly African American women from a residential substance use treatment program that housed females and their children. Eighty percent of the sample endorsed being single/never married at intake. Similarly, others have concluded community-based African American women with children may be more motivated to attend substance use treatment (Guerrero et al., 2014). However, our findings revealed neither partner status nor being a parent significantly predicted substance use treatment at the 18-month follow-up and warrants consideration of several additional points. Criminal justice-involved African American women are more likely to have disrupted relationships (Miller & Browning, 2000; Western & Wilderman, 2009), and few 'eligible' male partners due to the gender-ratio imbalance associated with incarceration (Carson & Anderson, 2016; Gaiter & O'Leary, 2010). Therefore, they may rely less on partners' input in making healthcare decisions such as seeking substance use

treatment. Additionally, support from partners may be insignificant compared to the influence of the court, as criminal justice-involved women may be mandated to substance use treatment to regain custody of their children (e.g. Brown et al., 2015), and/or fulfill sentence obligations.

Likewise, we found women in prison were significantly more likely to report substance use treatment at follow-up compared to those in the community (*predisposing vulnerable*). In many instances, women in prison are offered the opportunity to participate in corrections-based substance use treatment requiring community-based aftercare to maintain early release incentives (Federal Bureau of Prisons, [BOP], 2015). Alternatively, some research suggests parolees have more severe concerns prior to incarceration (Evans et al., 2011), including homelessness, less social support, use of more addictive substances (e.g. heroin/opioids vs marijuana), and mental health problems that increase risk of relapse and continued need for treatment (Evans et al., 2011).

Socioeconomically deprived African American women are also more likely to reside in impoverished communities with high rates of crime (Harrell, Langton, Berzofsky, Couzens, & Smiley-McDonald, 2014) and substance use (Bryant-Davis, Ullman, Tsong, Tillman, & Smith, 2010). The link between exposure to violent crime and substance use suggests African American women may use drugs or alcohol to self-manage trauma related stress (e.g. Anderson, Geier, & Cahill, 2016; Stevens-Watkins, Sharma, Knighton, Oser, & Leukefeld, 2014). As substance use progresses, treatment could be necessary. Though we measured exposure to traumatic events more broadly, we found that it increased the likelihood of substance use treatment in the final model (*predisposing vulnerable*). Collectively, these findings illustrate a well- supported need for substance use treatment among criminal justice-involved African American women,

with low socioeconomic status and histories of trauma.

In contrast, there is limited literature examining homelessness, religiosity, ethnic identity, and perceived racism as correlates of substance use treatment among criminal justice-involved African American women. We sought to clarify gaps in the literature but obtained null findings. However, our conclusions still warrant consideration of several inferences. Imminent concerns related to homelessness may be overshadowed by the need to engage in substance use treatment. Extant literature suggests individuals who experience homelessness are disproportionately impacted by a myriad of overlapping *predisposing* and *enabling* concerns (Gelberg et al., 2000), related to multiple marginalized social locations, including African American race, female gender, criminal justice status, chronic substance use, and mental health needs (e.g. National Coalition for the Homeless, 2009).

One or a combination of these concerns may increase the likelihood of receiving emergency care (Desai & Rosenhack, 2005; Kushel, Vittingoff, & Haas, 2001), or healthcare services from a spiritualist or faith healer (Oser et al., 2016). African American women who identify as religious or spiritual may be less likely to seek traditional health services (e.g. substance use treatment), as this could be perceived as a concern more suitable for managing with one's faith (Chandler, 2010). Another explanation suggests African American women who rely on religion and spirituality may strongly identify with ethnic values (Chandler, 2010). Ethnic identity, in turn, has implications for how African American women perceive encounters with healthcare staff in more traditional settings (Chandler, 2010). For example, African American women who have a keen sense of ethnic identity may be more vigilant to perceived stigma and racism (Chandler, 2010), associated with ability to pay and criminal justice status. These

perceptions could subsequently discourage healthcare use (Chandler, 2010), including substance use treatment.

Other scholars have also noted perceived barriers to care is negatively associated with substance use treatment among African Americans (Keen et al., 2014; Wechsberg, Zule, Riehman, Luseno, & Lam, 2007). However, we found perceived barriers to care significantly predicted increased likelihood of substance use treatment (*enabling vulnerable*). This finding warrant consideration of cultural factors. Consistent with John Henryism Active Coping (James, 1996), African American women with additional support are more likely to engage in healthcare utilization despite socioeconomic barriers (e.g. Stevens-Watkins et al., 2016). This suggests women in our sample may have had assistance from parole officers, case managers, or community-based service providers in securing substance use treatment (Rosenberg, Groves, & Blankenship, 2017), which minimized the adverse impact of perceived barriers to care. Supervised released provisions may provide formal and informal avenues for encouraging substance use treatment among African Americans released from prison (Rosenberg et al., 2017), notcommonly observed among community-based samples of African Americans (Keen et al., 2014; Wechsberg et al., 2007).

Similarly, women in prison may have more informal exposure and opportunities for rapport building with healthcare staff in their respective institutions. These experiences may gradually debunk biases and/or lack of trust in physicians, even after community re-entry. Though scholars have noted the role of trust in physicians in previous studies (Roberts & Nishimoto, 2006), it was not a significant correlate of substance use treatment in our study. The Trust in Physicians Scale has been used less frequently as a proxy of trust in the patient-client relationship among criminal justice-

involved African Americans (Altice, Mostashari, & Friedland, 2001), and may not adequately capture health-related experiences among this subgroup.

Health-related experiences among African Americans have been captured in previous studies using The John Henryism Active Coping Scale (Dressler et al., 1998; Light et al., 1995; Stevens-Watkins et al., 2014; Stevens-Watkins et al., 2016). However, John Henryism Active Coping (James, 1996) was not a significant predictor of substance use treatment in the multivariate model. Previous research suggests active coping is based on available resources and ability to problem-solve in a relatively short amount of time (James, 1996). Given the changing needs of the criminal justice-involved population (NIDA, 2014), active coping at baseline may have had little bearing on receiving substance use treatment over an18-month time-span.

In the absence of active coping, criminal justice-involved women are also more likely to endorse psychological distress (Scott et al., 2015). However, depressive and anxiety symptoms (*need vulnerable* factors) were not significantly predictive of substance use treatment among our sample. Previous research suggests African Americans are more likely to endorse somatic symptoms opposed to more traditional clinical indicators of depression and anxiety (Kingery, Ginsburg, & Alfano, 2007; Nadeem, Lange, & Miranda, 2009; Walsemann, Bell, & Maitra, 2011). Other scholars have also noted African American women are less likely to acknowledge symptoms of depression or anxiety due to perceived weakness and obligation to show strength (Beauboeuf-Lafontant, 2007; Woods-Giscombe, 2010). These findings suggest African American women may be less likely to endorse traditional indicators of psychological distress. Therefore, detecting a relationship between depression, anxiety, and substance use treatment among this sample may have been limited. Though null, our findings suggest future efforts are needed to

develop symptom checklists that reflect mental health symptoms experienced by African Americans (Watkins & Neighbors, 2013). Access to culturally relevant measures could improve future research initiatives examining mental health and substance use treatment among criminal justice-involved African American women.

Findings from the current study contribute to the literature on African American women but has some limitations. First, the current study is a secondary data analysis of predominantly criminal justice-involved low-income African American women from a southern state. The study findings may have limited generalizability to large samples of community-based African American women, in other geographic regions with higher incomes. Second, some interview questions asked about behaviors prior to incarceration and could be impacted by memory recall bias. Third, the interview questions were very personal and may have elicited underreporting of perceived stigmatized behaviors (e.g. Brown et al., 2012; Testa, Livingston, & VanZile-Tamsen, 2005). Fear of acquiring criminal charges may have been more pervasive among women on probation and in the community samples at baseline and could have led to minimization of substance use and receipt of treatment.

Despite its limitations, the current study addressed gaps in the literature by using a psychosocial framework to comprehensively examine health issues of criminal justice-involved African American women (Braithwaite et al., 2005; Gehlert et al., 2008). African American women involved in the criminal justice system encounter unique barriers to substance use treatment related to their vulnerable disposition. As the criminal justice system continues to see increasingly more racial minorities and women (Carson & Anderson, 2016), it is imperative to examine systemic policies that influence receipt of substance use treatment, including drug reform (Egleston, 2015) and accessibility to

healthcare (Buchmueller et al., 2016). Universal healthcare was developed to address healthcare needs of the underserved (Buchmueller et al., 2016).

However, it is unclear how the potential repeal and replacement of the Affordable Care Act will impact socially disenfranchised Americans with criminal justice histories. Policymakers are urged to consider the multilayered needs of African American women returning to the community from prison including continued access to case management and aftercare. These additional resources could minimize the stress of locating treatment with limited resources in addition to sustaining other post-incarceration obligations. Correctional staff and policy-makers may be justified in exploring transition plans for individuals returning to the community from prison to minimize costs of incarceration (Wagner & Rabuy, 2017) and tertiary care (Sekhri, 2000) exacerbated by substance-use related concerns. Transition plans that focus on *predisposing*, *enabling*, and *need* concerns may also be helpful in developing culturally-relevant interventions. Incorporating interventions that attend to multiple marginalized status may improve treatment retention, long-term sobriety, and overall health among criminal justice-involved African American women.

Table 4.0 *Descriptive Sample Characteristics. Sample of Criminal Justice Involved Black Women* (N = 320)

	M	SD	Range	α	%
Drug Treatment within 18 months of release (1= yes; 0 = no)					55.0
<u>Predisposing Factors: Traditional</u>					
Age (years)	34.85	10.72	18.00-59.00		
Education (years)	11.89	2.17	5.00-20.00		
Partner Status (1 = yes; 0 = no)					20.0
Number of Children	2.30	1.98	0.00-10.00		
<u>Predisposing Factors: Vulnerable</u>					
Criminal Justice Status					
Community * (1 = yes; 0 = no)					31.9
Prison (2 = yes; 0 = no)					38.4
Probation (3 = yes; 0 = no)					29.7
Homelessness (1 = yes; 0 = no)					23.1
Religious					93.8
Ethnic Identity	39.24	5.94	13.00-51.00	0.82	
Perceived Racism	32.35	13.73	17.00-96.00	0.92	
Trauma History	30.42	17.76	1.00-87.00	0.79	
<u>Enabling Factors: Traditional</u>					
Income					
$0 to 4,999					55.3
$5,000 to $9,999					16.9
$10,000 to $14,999					10.6
$15,000 to $19,999					7.8
$20,000 to $29,999					5.0
$30,000 to $39,999					2.8
$40,000 to $49,999					1.3
$50,000 to $74,999					0.3
Insurance Status					
Employer Insured					11.6
MEDICAID/MEDICARE					41.6
Uninsured*					46.9
Usual Place of Care (1 = yes; 0 = no)					92.5
Social Support	63.39	15.30	12.00-84.00	0.91	

Table 4.0 *continued*

Enabling Factor: Vulnerable					
Perceived Barriers to Care				0.84	65.9
Trust in Physicians	39.51	7.32	11.00-55.00	0.86	
Active Coping	50.32	6.24	14.00-60.00	0.75	
Need Factor: Traditional	1				
Self-reported Drug Use at Baseline (1 = yes; 0 = no)					100.0
Need Factor: Vulnerable					
Depressive Symptoms (1 = yes; 0 = no)					55.6
Anxiety Symptoms (1 = yes; 0 = no)					43.1

Note * = Comparison group.

Table 4.1. *Correlates of Substance Use Treatment among Criminal Justice-Involved African American Women* (N = 320)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1) Substance Treatment[a]	-												
2) Age	.22**	-											
3) Education	-.28**	.08	-										
4) Partner Status[a]	.03	.12*	.09	-									
5) Number of Children	.20**	.33**	-.09	.21**	-								
6) Community Status[a]	-.31**	-.09	.21**	-.05	-.21**	-							
7) Prison Status[a]	.22**	.13*	-.17**	.13*	.20**	-.54**	-						
8) Probation Status[a]	.08	-.04	-.03	-.08	-.00	-.44**	-.51**	-					
9) Homelessness[a]	.09	.14*	-.12*	-.01	-.04	-.08	.13*	.16**	-				
10) Religiosity[a]	.03	.01	.04	.03	.01	.04	-.06	.07	.16**	-			
11) Ethnic Identity	-.04	.08	.15**	-.03	.12*	.12*	.00	-.01	-.11	.05	-		
12) Perceived Racism	.04	.09	.09	.04	.00	-.01	.01	.03	.04	.01	-.13*	-	
13) Trauma History	.32**	.16**	-.04	.07	-.23**	.04	.19**	.19**	.25**	-.13*	.23**	-.01	-
14) Income	-.10	.19**	.35**	-.02	.03	-.08	.05	.02	-.06	-.04	.06	.17**	.13*
15) Medicaid[a]	.00	-.17**	-.12*	-.04	-.11*	.12*	-.01	.21**	-.01	.06	.03	.06	.08
16) Employer Insured[a]	-.08	.12*	.30**	.06	.09	-.00	-.08	-.10	-.13*	.05	.05	.10	.09
17) Uninsured[a]	-.01	-.15**	.10	.00	-.00	-.00	.01	-.13*	-.11	.06	.04	.06	-.01
18) Usual Place of Care[a]	-.04	-.08	.04	-.12*	.04	-.04	.00	-.07	-.01	-.02	.10	.16**	-.07
19) Social Support	-.19**	-.08	.12*	.00	.13*	-.05	-.08	-.14*	-.19**	.11	.27**	.18**	-.16**
20) Barriers to Care	.17**	.09	-.11	.09	-.10	-.04	.14*	.05	.10	.07	-.11*	-.02	.17**
21) Trust in Physicians	-.00	-.01	.07	.02	.03	.00	-.04	.03	-.10	.11*	.22**	.15**	-.21**
22) Active Coping	.14*	.03	-.09	-.06	-.01	.00	.00	-.01	.05	-.03	.23**	.12*	.22*
23) Depressive Symptoms[a]	.06	.06	-.00	.13*	-.05	.05	.00	.12*	.12*	-.05	-.05	.03	.24**
24) Anxiety Symptoms[a]	.13*	.13*	.03	.08	-.09	.05	.04	.20**	.12*	.02	-.09	.09	.23**

Table 4.1 Continued

Variables	14	15	16	17	18	19	20	21	22	23	24
1) Substance Treatment[a]											
2) Age											
3) Education											
4) Partner Status[a]											
5) Number of Children											
6) Community Status[a]											
7) Prison Status[a]											
8) Probation Status[a]											
9) Homelessness[a]											
10) Religiosity[a]											
11) Ethnic Identity											
12) Perceived Racism											
13) Trauma History											
14) Income	-										
15) Medicaid[a]	.03	-									
16) Employer Insured[a]	-.08	.34**	-								
17) Uninsured[a]	-.10	-.01	-.30**	-							
18) Usual Place of Care[a]	-.08	-.01	-.21**	-.09	-						
19) Social Support	-.33**	.05	.12*	.07	.07	-					
20) Barriers to Care	.20**	-.04	-.04	.11	.11	.15**	-				
21) Trust in Physicians	-.24	.08	-.13*	-.05	-.06	-.15**	-.08	-			
22) Active Coping	-.05	-.04	-.04	-.03	-.09	-.27**	.11*	-.22**	-		
23) Depressive Symptoms[a]	.30**	-.02	.10	.00	-.15**	-.09	-.23**	.13*	-.12*	-	
24) Anxiety Symptoms[a]	.39**	.00	.00	.04	-.06	-.04	-.15**	.14*	-.09	.52**	-

Note. a = Spearman Rho coefficients reported; * = $p < .05$; ** $p \leq .01$ (two-tailed test); *** $p \leq .001$

Table 4.2 *Summary of Hierarchical Logistic Regression Examining Predictors of Substance Use Treatment among Black women (N = 320)*

	Model 1		Model 2		Model 3		Model 4	
	OR (SE)	*95% CI*	*OR (SE)*	*95% CI*	*OR (SE)*	*95%CI*	*OR (SE)*	*95% CI*
Predisposing: Traditional								
Age	1.04 (0.01)***	[1.02, 1.07]	1.04 (0.01)**	[1.01, 1.06]	1.04 (0.01)***	[1.01, 1.06]	1.04 (0.01)***	[1.02, 1.07]
Education	0.73 (0.06)***	[0.65, 0.83]	0.74 (0.06)***	[0.64, 0.84]	0.74 (0.07)***	[0.65, 0.85]	0.76 (0.07)***	[0.68, 0.88]
Number of Children	1.12 (0.06)	[0.99, 1.28]	1.05 (0.06)	[0.92, 1.20]	1.05 (0.06)	[0.91, 1.20]	1.04 (0.06)	[0.90, 1.19]
Predisposing: Vulnerable								
Prison Status			1.43 (0.13)**	[1.09, 1.86]	1.44 (0.13)**	[1.10, 1.88]	1.50 (0.13)**	[1.14, 1.96]
Trauma History			1.03 (0.00)***	[1.02, 1.05]	1.03 (0.00)***	[1.01, 1.05]	1.03 (0.01)***	[1.01, 1.05]
Enabling: Traditional								
Social Support					0.98 (0.01)	[0.97, 1.00]	0.98 (0.01)	[0.97, 1.00]
Enabling: Vulnerable								
Barriers to Care							1.12 (0.12)*	[1.02, 1.22]
Active Coping							1.01 (0.02)	[0.97, 1.06]
Need: Vulnerable								
Anxiety Symptoms								
Model χ^2		44.80***		76.76***		78.97***		87.44***
Nagelkerle R^2		.17		.28		.29		.32

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

Table 4.2 Continued

	Model 5	
	OR (SE)	*95% CI*
Predisposing: Traditional		
Age	1.03 (0.01)*	[1.01, 1.06]
Education	0.76 (0.07)***	[0.66, 0.86]
Number of Children	1.04 (0.07)	[0.91, 1.20]
Predisposing: Vulnerable		
Prison Status	1.50 (0.1)**	[1.14, 1.96]
Trauma History	1.03 (0.00)***	[1.01, 1.05]
Enabling: Traditional		
Social Support	0.98 (0.01)	[0.96, 1.00]
Enabling: Vulnerable		
Barriers to Care	1.12 (0.04)*	[1.01, 1.22]
Active Coping	1.01 (0.02)	[0.97, 1.06]
Need: Vulnerable		
Anxiety Symptoms	0.87 (0.29)	[0.49, 1.54]
Model χ^2		87.65***
Nagelkerle R^2		.32

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

CHAPTER 5

Integration of Findings

The purpose of this dissertation was to examine substance use-related outcomes among criminal justice-involved African Americans using a multiple manuscript format. Extant literature illustrates substance use has consistently increased over time (Substance Abuse and Mental Health Services Administration, [SAMHSA], 2017) and African Americans involved in the criminal justice system may be at increased risk compared to their community-based counterparts (Baillargeon et al., 2010; Mahmood, Vaughn, Mancini, & Fu, 2013; Mumola & Karberg, 2007). Though previous studies have attended to substance use more generally among criminal justice-involved African Americans (Knighton et al., 2016; Nyamathi et al., 2014; Rowell, Wu, Hart, Haile, & El-Bassel, 2012; Staton-Tindall, Duvall, Stevens-Watkins, & Oser, 2013), rising trends (Center for Behavioral Health Statistics and Quality, [CBHSQ], 2015) suggest research focused on nonmedical prescription opioid and heroin use, more specifically, are needed. Nonmedical prescription opioid use has risen to epidemic proportions (Centers for Disease Control and Prevention, [CDC], 2016) and may be often highly accessible in predominantly lower income African American communities (Draus et al., 2012). Similarly, heroin use was considered an 'urban problem' in poor African American neighborhoods (Cicero, Ellis, Surratt, & Kurtz, 2014). Research suggests most African Americans released from prison will return to respective areas (Travis, Solomon, & Waul, 2001); therefore, it is important to examine nonmedical prescription opioid use and heroin use among this subgroup.

Nonmedical opioid use often requires formal substance use treatment (Rudd, Seth, David, & Scholl, 2016). Yet, African Americans frequently encounter barriers to treatment related to race, criminal justice status (Benson, Alarid, Burton, & Cullen, 2011; West, Vayshenker, Rotter, & Yanos, 2015), and low socioeconomic status (Moloney, van den Bergh, & Moller, 2009; Flores & Pellico, 2011). Some attempts have been made to explain why these barriers exist (Benson et al., 2011; West et al., 2015), though rarely, has psychosocial context been used as a primary guiding framework (Oser, Bunting, Pullen, & Stevens-Watkins, 2016; Stevens-Watkins et al., 2016). These findings suggest there is a need to examine predictors of substance use treatment among African Americans involved in the criminal justice system, using a psychosocial vantage.

The current dissertation sought to bridge current gaps in the literature by investigating substance use and related outcomes among criminal justice-involved African Americans. A combination of theory and quantitative methods were used to guide the formulation and analyses of research questions and hypotheses. The dissertation began with stating the significance of the study and operationally defining substance use based on the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-V; American Psychiatric Association, [APA], 2013) (chapter I). The significance of the dissertation was followed by a comprehensive discussion on the proposed systemic framework, which incorporated micro- and macro-level determinants of substance use specific to African Americans (chapter II). Building off this literature, a preexistent psychosocial framework (Smart, 1980) was used to examine correlates and trends in nonmedical prescription opioid and heroin use among criminal justice-involved African American men in a cross-sectional study (chapter III). The fourth chapter examined the

likelihood of criminal justice-involved African Americans with substance use concerns attending treatment. Specially, predictors of substance use treatment among African American women across criminal justice status were investigated using a longitudinal design. The current chapter will discuss the quantitative findings of both studies in relation to the proposed systemic framework, race and gender differences, strengths, limitations, and future directions for counseling psychologists.

Nonmedical opioid use

The first quantitative study examined trends and correlates of nonmedical opioid use among 4,021 African American men participating in corrections-based drug treatment funded through the Department of Corrections.

The results from this study revealed nonmedical opioid use is a growing problem among African American men with criminal justice histories, more years of education, and mental health concerns. Consistent with the proposed framework, *individual* level determinants of behavior were significantly and positively related to substance use (see figures 1.1 & 1.3). Specifically, greater endorsements of mental health symptoms and using prescription drugs to attenuate related concerns were related to increased likelihood of nonmedical prescription opioid use. African American men with criminal justice-involvement often endure a host of social and economic stressors (Haney, 2001; Western, Braga, Davis, & Sirois, 2015). Previous studies have related chronic joblessness is a common experience among African Americans released from prison (Western & Muller, 2013), regardless of years of education and job experience (Pager, 2003; Pager, Western, & Sugie, 2009). Further, African Americans returning to the *community* from prison often reside in socially marginalized areas with few job prospects (Wilson, 2012).

Prolonged periods of low-income and few resources to meet the demands of daily living has a significant and adverse impact on perceived masculinity and mental health among African American men (DeNavas-Walt & Proctor, 2014; Franklin, 2010). Though African American women may encounter similar socioeconomic barriers, they may be more likely to get support from social services or family/friends (Morse, Silverstein, Thomas, Bedel, & Cerulli, 2015); therefore, mitigating related stress.

Education attainment can be protective against chronic joblessness and the consequential adverse outcomes associated with socioeconomic deprivation (Rosenberg et al., 2017). Yet, the findings in this study illustrated more years of education significantly increased the probability of nonmedical prescription opioid use among criminal justice-involved African American men. This finding is difficult to explain given limited research and general inconsistency with previous theories (e.g. Smart, 1980; Brunswick, 1999). However, other studies suggest years of education may be a proxy for capturing the underlying impact of peer culture (e.g. Agnich et al., 2013; Peters et al., 2007).

One characteristic of peer culture is cultivated around music and entertainment (*interpersonal*). African Americans are regular consumers of contemporary rap music, which frequently glorifies nonmedical prescription opioid use, through associated images of luxury and wealth (Primack et al., 2008). Thus, rap music may encourage nonmedical prescription opioid use. The socially normalized and increased use of promethazine and codeine syrup among subgroups of African Americans is also observed across well- publicized overdoses of famous hip-hop artists (Watkins, 2013). These findings suggest socially reinforced use of nonmedical prescription opioids could

have significant and detrimental consequences over time (Watkins, 2013). For example, men in corrections- based drug treatment are taught to challenge criminogenic behaviors (Americanbar.org, n.d.), by avoiding music that elicits memories of substance use, as this can trigger relapse. Similarly, research on substance use with African Americans more broadly (Fothergill, Ensminger, Doherty, Juon, & Green, 2016), indicates the progression of nonmedical prescription opioid use may lead to neglecting education and employment obligations, igniting a cyclical pattern of socioeconomic deprivation, psychological distress, and potentially, criminal behavior. These conclusions suggest nonmedical prescription opioid use is embedded within a larger psychosocial context with far-reaching consequences. Therefore, systemic-level interventions should be considered to address related concerns.

Several systemic-level initiatives were enacted to address the nonmedical prescription opioid use epidemic (CDC, 2016) (*institutional*). One effort was organized by pharmaceutical companies. From 2010 to 2012, pharmaceutical companies reformulated Oxycontin and Opana to impede and discourage nonmedical use (Cassidy et al., 2014; Katz, 2008). Shortly thereafter, the Drug Enforcement Agency (DEA) executed Operation Snake Oil (U.S. Department of Justice, [DOJ], 2012) and Operation Pill Nation (Santos, 2013). These efforts were organized to dismantle pill mills and pain clinics that supplied prescription opioids to dealers and users in Florida and Georgia (DOJ, 2012; Santos, 2013). In tandem with law enforcement, *policy-level* changes were also implemented to address the nonmedical prescription opioid use epidemic (CDC, 2016). In 2011, Florida state legislatures prohibited doctors from prescribing schedule II or III narcotics and implemented required dispensing and monitoring programs (Johnson, Paulozzi, Porucznik, Mack, & Herter, 2014). Additionally, state and federal prisons

received increased funding to support the expansion of corrections-based drug treatment programs (U.S. Department of Justice, [DOJ], 2016a). Despite these interventions, findings from this study and others (Agnich et al., 2013; Broz & Ouellet, 2010; Green, Doherty, Reisinger, Chilcoat, & Ensminger, 2010), have revealed nonmedical prescription opioid use and heroin use has increased over time. Further, drug overdoses are currently the leading cause of accidental death in the U.S. with most attributed to prescription opioids and heroin (Kochanek, Murphy, Xu, & Tejada- Vera, 2016). Collectively, these findings suggest the acute need to increase accessibility to substance use treatment.

Psychosocial predictors of substance use treatment

Despite high rates of substance use (Mumola & Karberg, 2006), research has revealed women involved in the criminal justice system are significantly less likely to utilize treatment (Mahmood et al., 2013; Prendergast, 2009). We sought to investigate related disparities by examining psychosocial predictors of substance use treatment with a sample of 320 African American across criminal justice status.

The results illustrated criminal justice status, a self-reported trauma history, and perceived barriers to care significantly predicted increased likelihood of substance use treatment among a sample of low-income, criminal justice-involved African American women. The preliminary conceptual framework posits socioeconomic status (*individual*) sets the premise for substance use and related outcomes (see Figure 1.3). One explanation suggests poor women have few resources and are significantly more likely to remain with an abusive partner (*interpersonal*) to sustain livelihood (U.S. Department of Health and Human Services, [DHHS], 2015; Vil, Sabri, Nwokolo, Alexander, & Campbell, 2017). Substance use may be engaged to attenuate trauma-related mental health concerns

(Brunsiwick, 1999; Martins, Keyes, Storr, Zhu, & Chilcoat, 2009). Alternatively, some scholars have concluded poor African American women residing in crime- ridden *communities* are more likely to experience traumatic events (e.g. sex work) (Gapen et al., 2011), compared to their male counterparts (Gordon et al., 2013). Other research suggests, African American women with trauma histories may be introduced to highly addictive substance use behaviors (i.e. injection drug use and heroin use) by intimate partners (Binswanger, Mueller, Beaty, Min, & Corsi, 2014; Gordon et al., 2013). In contrast, African American men are more likely to initiate and sustain substance use by way of their criminal lifestyle (Binswanger et al., 2014), and antisocial peer networks (Artega, Chen, & Reynolds, 2010).

Substance use increases the likelihood of being involved in the criminal justice system for offenses directly related to sustaining addiction, such as theft or drug trafficking (Fletcher, Chandler, & the Office of Science Policy & Technology, 2014). Substance use treatment is often a recommended, if not required, condition of release from prison or parole for individuals with a history of drug and alcohol use (Federal Bureau of Prisons, [BOP], 2015). Women who complete treatment in prison are more likely to attend community-based aftercare services and have supervised release obligations (BOP, 2015). Regular contact with case managers, social workers, and parole/probation officers may provide opportunities to obtain referral sources for long-term substance use and mental health treatment (e.g. Morse et al., 2015). Access to additional support may counteract the impact of perceived barriers to behavioral health services despite a host of competing obligations (Oser et al., 2016). Collectively, these findings suggest *individual, interpersonal, and community*-based factors frequently intersect and determine health behavior and treatment utilization.

The intersection of micro and macro-level determinants of health behavior also extend to *institutional* practices in the criminal justice system. Barak and colleagues (2001) noted women with children are more likely to be court ordered to treatment in lieu of incarceration. Given African American women are more likely to be single mothers when compared to women of other races, (Mendenhall, Bowman, & Zhang, 2013), it is unlikely African American men receive equal consideration for drug treatment, using this justification. For example, criminologists have suggested African American men are significantly more likely to face punitive sentences compared to women and other races (Spohn & Holleran, 2000; Ulmer & Kramer, 1998), despite mitigating factors associated with need for treatment (Barak, 2000). Further, research suggests differential treatment associated with race, class, gender, and criminal justice status may be encountered during the pursuit of treatment. Research is well-documented showing African American men and women frequently perceive discrimination, stigma, and racism during encounters with healthcare workers (Benkert, Peters, Clark, & Keves-Foster, 2006; Greer, Brondolo, & Brown, 2014; Penner et al., 2009), which may deter treatment use (Austin, Carter, & Vaux, 1990; Malebranche, Peterson, Fulilove, & Stackhouse, 2004). Perceived barriers are often compounded among criminal justice-involved African Americans who have limited privacy in court-ordered substance use treatment, daily parole/probation obligations, and a host of reentry concerns that likely exacerbate pre-incarceration barriers associated with race, socioeconomic status (Carlson, Shafer, & Duffee, 2010; Evans, Jaffe, Urada, & Anglin, 2012; Friestad, Ase-Bente, & Kjelsberg, 2014), and parental status (Taylor, 2010).

Gender, race, class, and criminal justice status

While individual social locations associated with race, socioeconomic status, parental status, and criminal justice status may be more salient at a given time, systemic policies have a permeating impact across micro-and macro-level influences of treatment utilization. The "War on Drugs" policy was executed through law enforcement practices that disproportionately targeted low-income African American communities (e.g. 100 to 1 rule). Related drug laws are likened to institutional racism and have implications for differential sentencing based on gender and race (Barak, 2009; Alexander, 2010). These disparities are further complicated by class. Poor African American men and women often have less resources to acquire quality defense counsel and consideration for treatment diversion programs (Bright, 2012; Nicosia, MacDonald, & Arkes, 2013), commonly afforded to affluent or middle class White defendants (Barak, 2009). For example, one study found African Americans were significantly less likely to be referred to substance use treatment, instead of prison, for substance use-related crimes, compared to Whites (Nicosia, et al., 2013). These differences were partially attributed to income and the ability to hire quality legal counsel (Nicosia et al., 2013). Confronted with the possibility of lengthy prison sentences, African Americans may be more likely to accept plea deals at the request of public defenders, regardless of innocence or guilt, or mitigating factors (Bright, 2012). While previous findings suggest gender, differences exist (e.g. Spohn & Holleran, 2000; Ulmer & Kramer, 1998), a review of public policiesindicate substance-using African American men and women likely encounter a host of shared experiences at the nexus of race, class, and criminal justice-involvement.

Strengths

The manuscripts in this dissertation provide a comprehensive examination of substance use among African Americans involved in the criminal justice system and has several strengths. The framework outlined in chapter two is the first known effort to summarize psychosocial and systemic factors of substance use among African Americans with specific attention to gender and criminal justice status. The proposed framework may be helpful in conceptualizing the sophisticated context in which substance use exists among criminal justice-involved African Americans. Building on this framework, the second manuscript is the first known study to examine trends and correlates of nonmedical prescription opioid and heroin use among criminal justice-involved African Americans. Inferences drawn using the proposed framework may inform systemic efforts to address underlying socioeconomic barriers that increases risk of nonmedical prescription opioid and heroin use and treatment utilization. To bridge this gap, the third manuscript examined psychosocial predictors of substance use treatment with criminal justice-involved African American women. The results from this study may be used to develop systemic interventions aimed at increasing treatment use and reducing perceived barriers associated with race and criminal justice status (Freudenberg & Barnes, 2007). Collectively, the conducted studies contribute to an overall limited literature investigating substance use and treatment among criminal justice-involved African Americans. Conclusions drawn from the current studies may be used to further investigate persistent racial/ethnic health disparities (NIDA, 2014), and has implications for healthcare reform (Obama, 2016).

Limitations

Though this dissertation has notable strengths, it does not go without some common limitations across the studies. First, the samples were racially homogenous and primarily criminal justice- involved from one southern state. The recruitment procedure warrants caution in generalizing conclusions to non-African American and community-based populations in other regions of America. Second, the interview questions primarily focused on behaviors prior to incarceration and answers to items may have been subject to memory recall bias. Third, limitations associated with secondary data analyses impeded opportunities to examine the relationship between some psychosocial variables, nonmedical prescription opioid use, heroin use, and substance use treatment. For example, investigating the role of significant others in the initiation of nonmedical prescription opioid use, could have allowed for more discussion surrounding interpersonal influences. Similarly, the rare occurrence of heroin use precluded opportunities to conduct a multivariate analysis without introducing significant bias. Results from a regression analysis examining heroin use could have provided a statistically rigorous premise to further discuss the implications of psychosocial context in relation to heroin use among men in corrections-based drug treatment. Future efforts need to clarify the relationship between nonmedical prescription opioid use, heroin use, and potential barriers to treatment among criminal justice-involved African American men and women. Finally, variation in study procedures and recruitment limited inferences drawn related to intersectionality across male and female participants. Criminologists and sociologists have noted the increasing need for quantitative studies examining the intersectionality of class, race, gender, criminal justice status using a culturally specific conceptual framework (Barak et al., 2000; Maher, 1997).

Future studies investigating between- group differences of African American men and women are encouraged.

Implications for counseling psychologists

Despite its limitations, the findings of the current study outline a complex profile of risk factors for substance use among African Americans involved in the criminal justice system who need treatment. Counseling psychologists are well suited for managing varied concerns of this subgroup through multiple avenues, including evidence-based practice. For example, incorporating religion and spirituality may allow African American clients to approach treatment from a strengths-based perspective. Alcoholics Anonymous and Narcotics Anonymous are two faith-based self-help programs that reinforce universal principles of empowerment and healing, opposed to interventions that may elicit self-deprecation and repeated discussion of perceived failures (Narcotics Anonymous, [NA], 2017). Self-help treatment models also promote autonomy and provide more ability to manage daily responsibilities. Other culturally relevant approaches may include exploring perceived barriers to treatment related to racism, lack of insurance, transportation, and childcare (Guerrero et al, 2014; Morse et al., 2015; Taylor, 2010). Given African American women's multiple marginalized social locations (Braithwaite, Treadwell, & Arriola, 2005), counseling psychologists are justified in exploring culturally specific interventions and proactive avenues to minimize the impact of perceived impediments to care.

Continuity of care. Psychoeducation may be one viable intervention to address related concerns. African Americans returning from prison may have limited experience searching for healthcare resources in the community (Mar, 2015). Counseling psychologists are justified in contacting local healthcare providers for or with the client to verify location, costs, and service availability. This segue may improve frustration tolerance and increase likelihood of treatment utilization. Providers with an established relationship with drug and alcohol treatment specialists may also consider arranging a 'warm hand off.' This approach could be useful for African Americans with internalized stigma related to their criminal justice status and/or race. In these circumstances, counseling psychologists may serve as a formal source of encouragement to enter substance use treatment. Likewise, counseling psychologists who provide clinical services within prisons may consider similar approaches to initiate community-based services for African Americans preparing for re-entry.

Diversity training and education. Counseling psychologists working in correctional settings, however, may face obstacles implementing re-entry initiatives. The prison environment is an amalgamation of ethnic diversity (Carson, 2014; Spiegel, 2007), and often laden with racial microaggressions by well-intentioned staff (Kerness & Lewey, 2014; Olson, 2016). Adverse encounters with staff may deter healthcare use (e.g. Austin et al., 1990; Malebranche et al., 2004) during and post-incarceration, which further exacerbates disparities (James & Glaze, 2006). Continued education and diversity trainings may reduce the occurrence of racial microaggressions and subsequent underutilization of services (American Psychological Association, [APA], 2008), Gomez, 2015; Tervalon & Murray-Garcia, 1998,). Counseling psychologists working in

correctional environments are well-equipped to deliver diversity trainings (Packard, 2009), and consultation to promote a culture of respect and understanding of historically and racially marginalized inmates (Pieterse, 2016; Smith & Hattery, 2010). Considering the disproportionate number of African Americans in prison (Carson, 2014) and significant need for behavioral health services among incarcerated populations (James & Glaze, 2006), concerted efforts between psychologists and correctional staff are needed to sustain the health (Haney, 2001) of African Americans cycling through the criminal justice system.

Social justice and political advocacy. Collaboration between systems also requires that both parties are well-informed on recent literature. Historically, substance use was conceptualized as an intentional behavior of morally deficient individuals (Volkow, 2014). This perspective frequently results in prejudice and incarceration, in lieu of treatment (Carson, 2014; Volkow, 2014). More recently, research has conveyed substance use as a medical problem sustained within a psychosocial context (Kuhar, 2010; Gifford & Humphreys, 2007; Ray, 2012; Volkow, 2014). Yet, there is an abundance of research that suggests substance use, particularly among African American communities, continues to elicit punishment (Barak 2000; Carson, 2014). Counseling psychologists engaged in social justice initiatives and advocacy may be ideal for confronting messages that over-pathologize substance use (Volkow, 2014). Concerted efforts may include advocating for substance use management through behavioral health services (APA Practice Organization, 2017). Related efforts should also address impediments to quality care and lack of insurance among criminal justice-involved African Americans (Wang, White, Jamison, Goldenson, Estes, & Tulsky, 2008). Thus,

organized “call to action(s)” are needed to urge for transparency regarding how healthcare reform will impact accessibility to behavioral health services to African Americans with criminal justice-involvement. Collectively, these social justice initiatives could impact systemic disparities related to mass incarceration (Alexander, 2010) and healthcare accessibility (Wang et al., 2008), among criminal justice-involved African Americans.

Prevention interventions. Counseling psychologists are also encouraged to advocate for systemic interventions that could be vital in preventing the cyclical pattern of substance use and incarceration. Specifically, lawmakers should consider underlying social and economic risk factors that predispose African Americans to criminal behavior, substance use, and later, the need for treatment (Rosenberg et al., 2017). Funding education, vocational skills/training, and job growth opportunities could be a proactive and systemic approach to addressing substance use at the *individual* level (Rosenberg et al., 2017). Research has consistently shown acquisition of gainful employment can prevent recidivism and relapse (Morenoff & Harding, 2011). Yet, criminal justice-involved African Americans may have a limited scope of suitable careers.

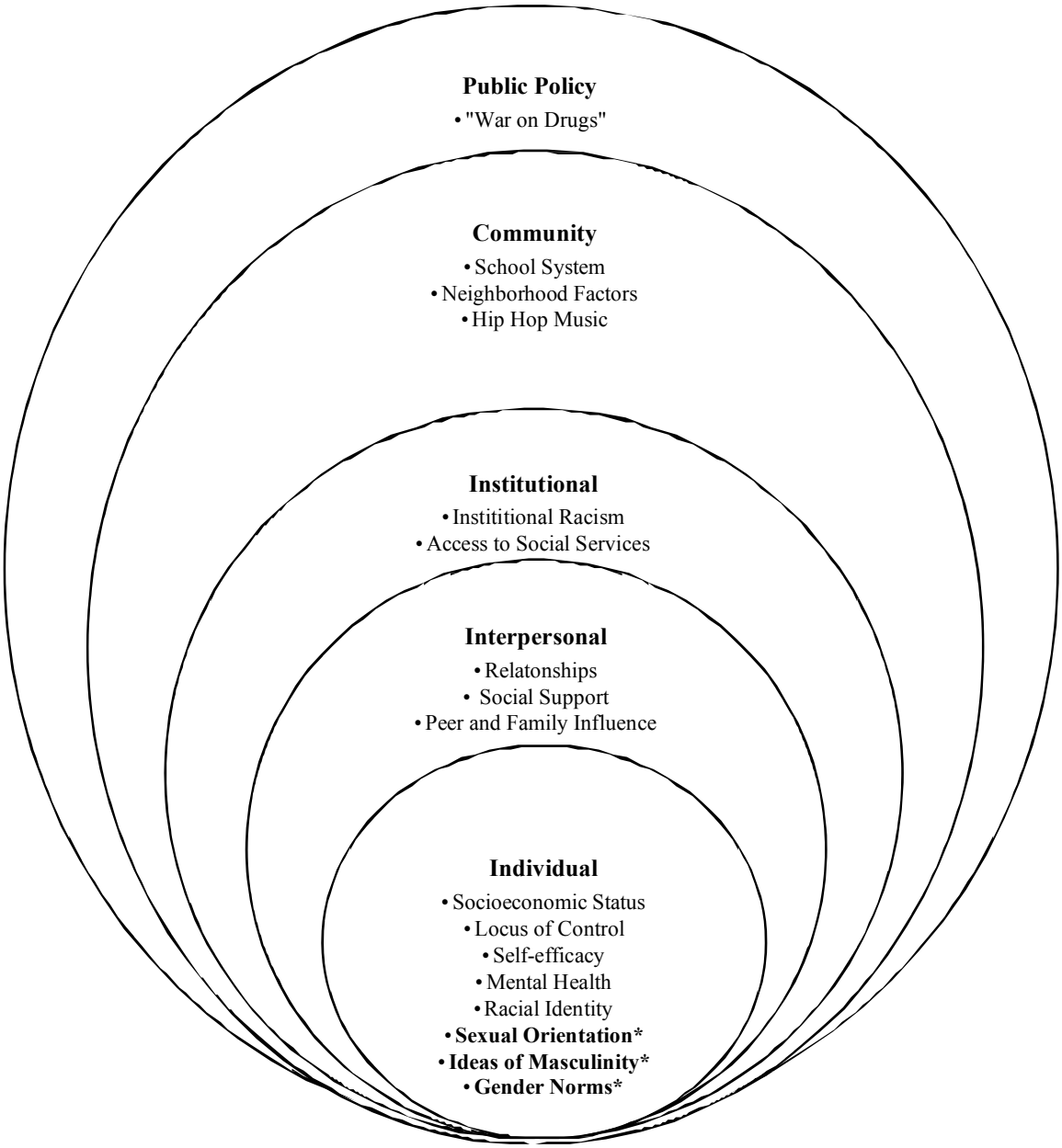
Counseling psychologists working with African Americans at-risk for incarceration or planning for reentry may be beneficial in exploring feasible occupations to pursue, relative to their education level and experience. Interview preparation could also ease anxiety associated with discussing ex-offender status and/or competing obligations associated with supervised release, parental obligations, or aftercare. To this aim, counseling psychologists would be justified in establishing interdisciplinary connections with community-based employers, vocational skills/training centers, and

allies. Continued advocacy for the Work Opportunity Tax Credit is also needed to sustain incentives for employers who hire convicted felons (U.S. Department of Labor, 2017). Collectively, counseling psychologist's role in related efforts may be beneficial in securing prosocial avenues for financial gain and preventing future substance use and reoffending.

Conclusion

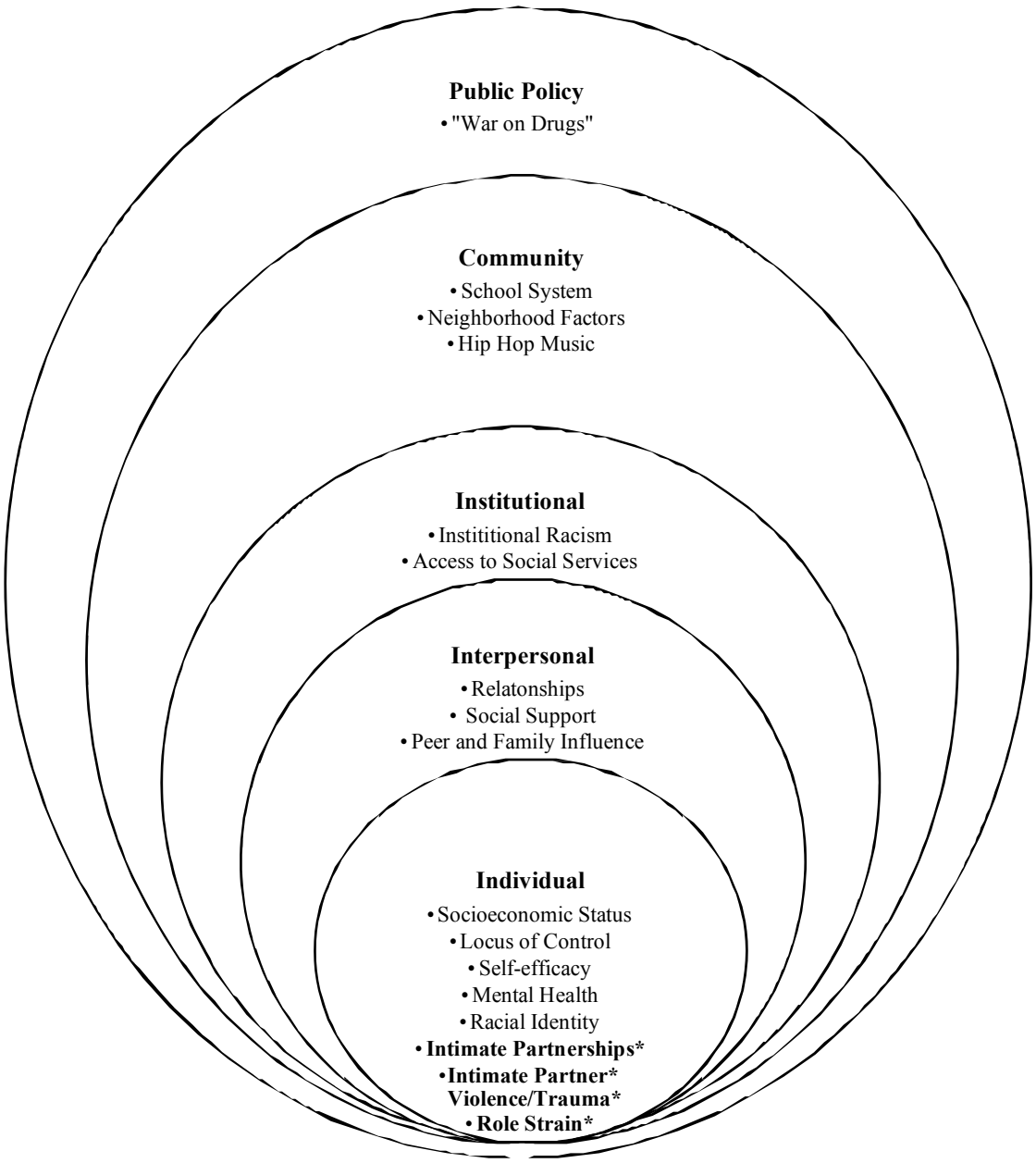
The current dissertation provided a comprehensive examination of substance use and treatment among criminal justice-involved African Americans. The findings suggest substance use and treatment exists within a sophisticated psychosocial context. Counseling psychologists should consider ways in which they can combat healthcare disparities through evidence- based practice and advocacy. Systemic advocacy is of notable priority given ongoing dialogues about healthcare reform in America. Future studies need to examine how changes to healthcare may affect social and economically marginalized African Americans with criminal justice-involvement. Related efforts have implications for addressing public health initiatives, healthcare costs (Birnbaum et al., 2011; Kirson et al., 2017), and disparities among criminal justice-involved African Americans (Binswanger, Redmond, Steiner, & Hicks, 2012; Kulkarni, Baldwin, Lightstone, Gelberg, & Diamant, 2010). Given continuously rising rates of incarceration among African Americans (Carson, 2014) and substance use (SAMHSA, 2017), there will be a continued need for counseling psychologists to remain vigilant throughout these discussions.

Figure 5.0 Provisional Conceptual Model of Substance Use among African American Men



Note: (*) and **Bolded** items represent unique considerations of substance use among African American men.

Figure 5.1 Provisional Conceptual Model of Substance Use among African American Women



Note: (*) and **Bolded** items represent unique considerations of substance use among African American women.

APPENDICES

Appendix A: Rationale for Major Changes made to Dissertation Studies

In October 2015, my committee members and I agreed upon a plan of action for completing the quantitative studies. In executing these tasks, I encountered several impediments due to use of secondary data. Further, a more extensive review of the literature revealed that some theories were more suitable for addressing the initially proposed questions. Therefore, some variables were omitted, while others were retained or added to address the research questions and hypotheses. Finally, consultation with my chair, principle investigators, and the statisticians revealed alternative statistical methods that were better suited given limitations in the data. Please see below for a more detailed discussion of changes to the quantitative studies in chapters III and IV. There were no significant changes to Chapters I, II, or V.

Chapter III: Nonmedical Prescription Opioid Use and Heroin Use among African American Men in Corrections-Based Drug Treatment

- Initially, a combination of the McLeroy and colleagues (1992) modified version of Bronfenbrenner's (1979) ecological model and Brunswick's (1999) structural strain theory were proposed as conceptual frameworks. While conducting a more extensive literature review for this manuscript, I located the Availability-Proneness Theory for Opioid Addiction, which was outlined in the National Institute on Drug Abuse's monograph in 1980. The theory concisely attended to relevant psychosocial factors, criminal justice involvement, and opioid use, specifically. Therefore, I decided to use the Availability-Proneness Theory for Opioid Addiction in place of the previously mentioned theories. I revised the research questions and hypotheses based on the Availability-Proneness Theory of Opioid Addiction and extant research. The initially proposed purpose of the manuscript (i.e. to examine trends in nonmedical prescription opioid use and heroin use) was unchanged.

- The proposal outlined several sociodemographic and psychosocial variables of interest to examine in relation to nonmedical prescription opioid and heroin use. Several were not included in the final manuscript (i.e. income, neighborhood characteristics, perceptions of marginalization, influence from peers, family, and intimate partners), and one was added (i.e. using prescription drugs to attenuate psychological distress). Income was not included in the analyses because this variable was not available in the secondary dataset. I also had hopes of including neighborhood characteristics, using zip code as a proxy for measuring community variables. However, participants identified residing in an estimated 100 different zip codes with a moderate degree of variation. Thus, it was not feasible to use this variable. Additionally, the variable measuring perceptions of marginalization was excluded because it was not well supported by the availability-proneness theory or extant literature, in relation to opioid use. The variable examining influence

from peers, family, and intimate partners was missing over 900 (23%) responses and therefore, excluded. The decision to examine the use of prescription drugs to attenuate psychological distress in relation to nonmedical prescription opioid use was supported by the availability-proneness theory of opioid addiction (Smart, 1980). The theory suggests individuals with socioeconomic deprivation may be more likely to experience psychological distress and engage in consequential opioid use (Smart, 1980).

- The initial proposal declared to provide descriptive statistics for sociodemographic variables (i.e. age, education, employment) and psychosocial variables and conduct a trend analysis across the five cohorts. With consultation from my chair, I decided to conduct bivariate correlations examining the relationship between sociodemographics, psychosocial variables, nonmedical prescription opioid use, and heroin use. I also ran a logistic regression including variables significant at the bivariate level and nonmedical prescription opioid use as the dependent variable. Due to the low frequency in heroin use, a logistic regression was not executed and only bivariate correlations were reported. The bivariate correlations and multivariate analyses were added to increase the statistical rigor of the findings.

Chapter IV: Psychosocial Predictors of Substance Use Treatment among Criminal Justice-Involved African American Women

- The original purpose of this manuscript was to examine psychosocial predictors of drug treatment at 6-month follow-up among a sample of criminal justice-involved African American women. The principle investigator suggested the dependent variable focus on responses across 18-months. This change was supported by the literature as criminal justice-involved African American women appear to have changing needs that may be better captured over an extended period. Therefore, I created the dependent variable (substance use treatment at 18-month follow-up) and included summed responses at Wave 2, 3, and 4.

- Initially, women (drug using and non-drug using) were included in the proposed idea. However, consistent with the Behavioral Model for Vulnerable Populations (Gelberg, Andersen, & Leake, 2000), it appeared counterintuitive to include non-drug- using women. Stated differently, women who denied drug use would not be expected to have a need for substance use treatment. Therefore, women who reported drug use and baseline were filtered out and used to examine the proposed research questions and hypotheses.

- Several psychosocial variables were added, consistent with the premise of the Behavioral Model for Vulnerable Populations (Gelberg et al., 2000). Specifically, ethnic identity, trauma history (*predisposing vulnerable*), personal income (*enabling traditional*), and active coping (*enabling vulnerable*). Ethnic identity is

a culturally relevant variable related to African American values and behavior. However, there is little research examining the relationship between ethnic identity and substance use treatment. Additionally, previous studies (with the BWISE sample and similar samples) have noted a history of trauma is common among criminal justice-involved African American from low SES communities. Further, there is substantial literature supporting the association between trauma history and substance use; though, little is known about the relationship between trauma history and substance use treatment among low-income African American women involved in the criminal justice system. Similarly, the literature review revealed only one study (Stevens-Watkins et al., 2016) that investigated the relationship between John Henryism Active Coping (JHAC; James, 1996) and substance use treatment among criminal justice-involved African American women. The premise of JHAC (James, 1996) suggests African Americans may pursue healthcare, despite having few resources (i.e. low-income, lack of insurance). Collectively, added variables were supported by the Behavioral Model for Vulnerable Populations (Gelberg et al., 2000) and offered significant contributions to social science literature.

- In the proposal meeting, it was agreed that structural equation modeling would be used to analyze the fit of the behavioral model for vulnerable populations in predicting substance use treatment. I worked with a statistician for several months, learned MPlus and specifically how to run and design the model. However, the overall model was not a good fit and several of the variables did not load well on the latency factors. Continuing with the SEM given the null findings would significantly impede the ability to publish the manuscript. With consultation from my chair, the principle investigator, and the statistician I decided to return to my original plan and conducted a regression analysis. I have retained the SEM output if needed for further justification.

- The data analytic model was updated so that contributions of the traditional and vulnerable domains could be maximized. Specifically, a hierarchical logistic regression model was designed with *predisposing traditional* variables entered in step one, *predisposing vulnerable* variables entered in step two, *enabling traditional* variables in step three, and so forth.

Appendix B: Multigroup Ethnic Identity Measure

Phinney, J.S. (1992). The multigroup ethnic identity measure: A new scale for use with diverse groups, *Journal of Adolescent Research,* 7, 156-176.

This 12-item scale was designed to measure the aspects of ethnic identity that are common to all members of ethnic minority groups and that would permit assessment and comparison of ethnic identity and its correlates both within and across groups.

Response categories are as follows:
1 Strongly disagree
2 Disagree
3 Agree
4 Strongly agree

Statement
1. I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
2. I am active in organizations or social groups that include mostly members of my own ethnic group.
3. I have a clear sense of my ethnic background and what it means for me.
4. I think a lot about how my life will be affected by my ethnic group membership.
5. I am happy that I am a member of the group I belong to.
6. I have a strong sense of belonging to my own ethnic group.
7. I understand pretty well what my ethnic group membership means to me.
8. In order to learn more about my ethnic background, I have often talked to other people about my ethnic group.
9. I have a lot of pride in my ethnic group.
10. I participate in cultural practices of my own group, such as special food, music, or customs.
11. I feel a strong attachment towards my own ethnic group.
12. I feel good about my cultural or ethnic background.

Appendix C: Schedule of Racist Events

Landrine, H. and Klonoff, E.A. (1996). The schedule of racist events: A measure of racial discrimination and a study of its negative physical and mental health consequences, *Journal of Black Psychology*, 22(2), 144-168.

The SRE is a 17-item self-report inventory measuring the frequency with which African Americans have experienced specific racist events (types of racist discrimination).

Response categories are as follows:

1 this has NEVER happened to you
2 this has happened ONCE IN A WHILE (less than 10% of the time)
3 this has happened SOMETIMES (10% - 25% of the time)
4 this has happened A LOT (26% - 49% of the time)
5 this has happened MOST OF THE TIME (50% - 70% of the time)
6 this has happened ALMOST ALL OF THE TIME (more than 70% of the time

Questions
1. How many times have you been treated unfairly by *teachers and professors* because you are black?
2. How many times have you been treated unfairly by your *employers, bosses and supervisors* because you are Black?
3. How many times have you been treated unfairly by *your coworkers, fellow students and colleagues* because you are Black?
4. How many times have you been treated unfairly by *people in service jobs* (store clerks, waiters, bartenders, bank tellers and others) because you are Black?
5. How many times have you been treated unfairly by *strangers* because you are Black?
6. How many times have you been treated unfairly by *people in helping jobs* (doctors, nurses, psychiatrists, case workers, dentists, school counselors, therapists, social workers and others) because you are Black?
7. How many times have you been treated unfairly by *neighbors* because you are Black?
8. How many times have you been treated unfairly by *institutions* (schools, universities, law firms, the police, the courts, the Department of Social Services, the Unemployment Office and others) because you are Black?
9. How many times have you been treated unfairly by *people that you thought were your friends* because you are Black?
10. How many times have you been *accused or suspected of doing something wrong* (such as stealing, cheating, not doing your share of the work, or breaking the law) because you are Black?
11. How many times have people *misunderstood your intentions and motives* because you are Black?

12. How many times did you *want to tell someone off for being racist but didn't say anything*?
13. How many times have you been *really angry about something racist that was done to you*?
14. How many times were you *forced to take drastic steps* (such as filing a grievance, filing a lawsuit, quitting your job, moving away, and other actions) to deal with some racist thing that was done to you?
15. How many times have you *been called a racist name like nigger, coon, jungle bunny or other names?*
16. How many times have you *gotten into an argument or a fight about something racist that was done to you or done to somebody else*?
17. How many times have you been *made fun of, picked on, pushed, shoved, hit, or threatened with harm* because you are Black?

Appendix D: Traumatic Life Events Questionnaire (TLEQ)

Kubany, E.S., Haynes, S.N., Leisen, M.B., Owens, J.A., Kaplan, A.S., Watson, S.B., & Burns, K. (2000). Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: The traumatic life events questionnaire, *Psychological Assessment*, 12(2), 210-224.

The TLEQ is intended to be used to help constitute an individual's "trauma history". It measures exposure to a broad range of traumatic events and assesses the occurrence of stalking, miscarriages, abortions, childhood witnessing of family violence, or life-threatening or permanently disabling accidents, assaults, or illnesses to loved ones.

This version of the TLEQ differs from the original. We have omitted questions regarding natural disasters, combat experience, and unwanted sexual contact in childhood. Additionally, we have added questions regarding relationship, employment, financial, and legal problems/difficulties that were not included in the validated version. Questions 18-23 were added by the PI and the three items about adolescent sexual abuse (sexual abuse before age 13 by someone at least 5 years older, sexual abuse before age 13 by someone close in age, and sexual abuse during adolescence) were condensed into a single item - #11. Also, the validated version does not ask if/how often these events occurred in the year prior to incarceration.

<u>Response categories are as follows:</u>

0 Never

1 Once

2 Twice

3 Three times

4 Four times

5 Five times

6 More than 5 times

STATEMENTS
1. You were involved in a motor vehicle accident for which you received medical attention or that badly injured or killed someone.
2. You were involved in another type of accident that resulted in injury or death.
3. A close friend or loved one died unexpectedly.
4. You were the victim of a mugging or robbery that involved a weapon.
5. You were severely physically assaulted by an acquaintance or stranger.
6. You witnessed the severe assault of an acquaintance or stranger.
7. You were threatened with death or serious bodily harm.
8. While growing up, you were physically punished in a way that resulted in bruises, burns, cuts, or broken bones.
9. While growing up, you witnessed physical violence between family members in your home.
10. You were physically abused by a boy-girlfriend/partner/husband/significant other.
11. Before age 18, you had unwanted/non-consenting sexual contact (i.e., rape).
12. As an adult, you had unwanted/non-consenting sexual contact.
13. You have been stalked.
14. You have had a life-threatening personal illness.
15. A close friend or love one has had a life-threatening or permanently disabling illness.
16. You have had a miscarriage.
17. You have had an abortion.
18. You had a separation due to marital difficulties.
19. You broke off a steady relationship or got divorced.
20. You became unemployed or you were seeking work unsuccessfully for more than one month.
21. You were sacked (laid off, fired) from your job.
22. You had a major financial crisis.
23. You had problems with the police and a court appearance.

Appendix E: Multidimensional Scale of Perceived Social Support

Zimet, G.D., Dahlem, N.W., Zimet, S.G., & Farley, G.K. (1988). The multidimensional scale of perceived social support, *Journal of Personality Assessment*, 42(1), 30-41.

This is a 12-item scale typically used along with a scale that measures depression/anxiety to determine if social support and experiences with depression/anxiety are correlated.

Response categories are as follows:

1 Very strongly disagree
2 Strongly disagree
3 Mildly disagree
4 Neutral
5 Mildly agree
6 Strongly agree
7 Very strongly agree

Statement
1. There is a special person who is around when I am in need
2. There is a special person with whom I can share joys and
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my
11. My family is willing to help me make decisions.
12. I can talk about my problems with my friends.

Appendix F: Perceived Barriers Scale

The Perceived Barriers scale is a 25-item instrument created to assess impediments to using healthcare services.

Response categories are as follows:

1 Yes
0 No

Are any of the following statements reasons why you didn't get health care or even an annual physical exam during the past year?...	
1. Didn't know where to go	16. Procrastinated/put it off
2. Didn't know what kind of doctor to see	17. Too embarrassed
3. Hours not convenient	18. Did not think anyone could help
4. Unclean doctor's office	19. No insurance coverage
5. Care was not available	20. Costs too much
6. Could not get an appointment	21. Child care not available
7. Have to wait too long at the doctor's office	22. Couldn't take time off work
8. Uncomfortable waiting room at the doctor's	23. Didn't have a way to get there
9. Confidentiality (privacy)	24. Too far to go
10. Too much paperwork	25. Fear of being refused healthcare
11. Fear of racial discrimination	26. Treated myself
12. Couldn't get treatment by a Black doctor	27. Fear of being treated rudely
13. Don't trust doctors	28. Afraid to find out what I had
14. Afraid I would get busted for substances	
15. Did not want treatment	

Appendix G: Trust in Physicians Scale

Anderson, L.A. and Dedrick, R.F. (1990). Development of the trust in physician scale: A measure to assess interpersonal trust in patient-physician relationships, *Psychological Reports*, 67, 1091-1100.

This 11-item scale is designed to assess a patient's interpersonal trust in her physician. Interpersonal trust is defined as a person's belief that the physician's words and actions are credible and can be relied upon. This definition refers to trust within the ongoing relationship (process) rather than trust in a physician's ability to affect health outcomes positively.

Response categories are as follows:

1 Strongly disagree
2 Disagree
3 Undecided (Not Sure)
4 Agree
5 Strongly agree

Statements
*1. I doubt that my doctor really cares about me as a person.
2. My doctor is usually considerate of my needs and puts them first.
3. I trust my doctor so much I always try to follow his/her advice.
4. If my doctor tells me something is so, then it must be true.
*5. I sometimes distrust my doctor's opinion and would like a second one.
6. I trust my doctor's judgments about my medical care.
*7. I feel my doctor does *not* do everything he/she should for my medical care.
8. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.
9. My doctor is a real expert in taking care of medical problems like mine.
10. I trust my doctor to tell me if a mistake was made about my treatment.
*11. I sometimes worry that my doctor may not keep the information we discuss

*are reverse-scored items.

Appendix H: Active Coping Scale

James, S.A. (1996). The John Henryism scale for active coping. In R.L. Jones (Ed.), *Handbook of Tests and Measurements for Black Populations* (Vol. 2, pp. 419-425), Hampton, VA: Cobb & Henry Publishers.

This 12-item scale was developed to measure a person's behavioral propensity to cope actively (rather than passively) with difficult psychosocial environment stressors. The scale items emphasize 3 mutually reinforcing themes: efficacious mental and physical vigor; a commitment to hard work; and, a single-minded determination to achieve one's goals.

The response categories are as follows:

1 Completely True

2 Somewhat True

3 Don't Know

4 Somewhat False

5 Completely False

Statements
1. I've always felt that I could make of my life pretty much what I want to make of it.
2. Once I make up my mind to do something, I stay with it until the job is completely done.
3. I like doing things that other people thought could not be done.
4. When things don't go the way I want them to, that just makes me work even harder.
5. Sometimes I feel that if anything is going to be done right, I have to do it myself.
6. It's not always easy, but I manage to find a way to do the things I really need to get done.
7. Very seldom have I been disappointed by the results of my hard work.
8. I feel that I am the kind of individual who stands up for what she believes in, *regardless of the consequences.*
9. In the past, even when things got *really* tough, I never lost sight of my goals.
10. It's important for me to be able to do things the way I want to do them rather than the way other people want me to do them.
11. I don't let my personal feelings get in the way of doing a job.
12. Hard work has really helped me to get ahead in life.

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Vita

Joi- Sheree' Knighton, M.A., Ed.S.

EDUCATION

Education Specialist, Counseling Psychology
University of Kentucky 2013-2015

Master of Arts, Clinical Psychology
Spalding University 2010-2013

Bachelor of Arts, Psychology
Oakland University 2003- 2008

PROFESSIONAL CLINICAL EXPERIENCES

Doctoral Psychology Intern
Federal Bureau of Prisons 08/16- 08/17

Corrections Therapy and Assessment Doctoral Trainee
Kentucky Correctional Institution for Women 09/15 – 04/16

Corrections Assessment Doctoral Trainee
Eastern Kentucky Correctional Complex 12/15- 06/16
Kentucky State Reformatory 11/15- 06/16
Luther Luckett Correctional Complex 07/15- 06/16
Blackburn Correctional Complex 04/15 – 06/16

Outpatient Doctoral Trainee
University of Kentucky Counseling Center 08/14 – 05/15

Corrections Therapy and Assessment Doctoral Trainee
Federal Bureau of Prisons 09/13 – 07/14

Outpatient Therapy Doctoral Trainee
Iroquois High School 08/12- 08/13

Inpatient Adult Assessment Doctoral Trainee
Central State Hospital 03/12 – 08/12

Residential Assessment Clinical Doctoral Trainee
Sheppard & Associates Psychological Services 08/11 – 04/12

Mental Health Assistant
Henry Ford Health System 07/09 – 08/10

Psychology Intern
Vista Maria 05/04 – 05/05

PROFESSIONAL SUPERVISIORY EXPERIENCES

Community Mental Health: Doctoral Supervisor
University of Kentucky 03/15 – 05/15

Assessment Doctoral Supervisor
University of Kentucky 01/15 – 03/15

Outpatient Doctoral Supervisor
University of Kentucky 02/14 – 05/14

PROFESSIONAL TEACHING EXPERIENCES

Graduate Teaching Assistant
University of Kentucky 08/13 – 05/14

Invited Guest Lecturer
University of Kentucky 02/14

Invited Guest Lecturer
University of Kentucky 11/13

RESEARCH EXPERIENCES

NIDA T32 Predoctoral Research Fellow & Co-Investigator
University of Kentucky College of Medicine 07/14 – 10/16

Graduate Research Assistant
University of Kentucky 08/13 – 11/14

Graduate Research Assistant
Louisville Metro Juvenile Detention Center 01/12 – 07/13

RESEARCH EXPERIENCES CONT.

Psychological Test Administrator
Spalding University 06/11 – 07/13

Lead Graduate Research Assistant
Spalding University 08/10 – 05/13

Lead Research Lab Assistant
Oakland University 09/08 – 08/10

PEER-REVIEWED PUBLICATIONS

Knighton, J.S., Stevens-Watkins, D., Staton, M., & Pangburn, K. (2017). Nonmedical opioid use among criminal justice-involved African American men. *Manuscript under review.*

Knighton, J.S., Stevens-Watkins, D., Oser, C., Mahaffey, C., Fisher, S., Crowell, C., & Leukefeld, C. (2016). Perceived risk of HIV infection among African American male prisoners after community re-entry. *Substance Use and Misuse, 2,* 1-9.

Stevens-Watkins, D., **Knighton, J.S.**, Allen, K., Fisher, S., Crowell, C., Mahaffey, C., Leukefeld, C., & Oser, C. (2016). Examining cultural correlates of treatment participation among African American women. *Journal of Substance Abuse Treatment*, *63*, 54-60.

Mahaffey, C., Stevens-Watkins, D., & **Knighton, J.S**. (2016). The psychosocial determinants of health among incarcerated women: A systematic literature review. *Journal of Health Care for the Poor and Underserved*, 27(2), 45-70.

Stevens-Watkins, D., **Knighton, J.S.**, Mitchell, N., Oser, C., & Leukefeld, C. (2013). Perceptions of eligible Black men as a context for HIV-related risk behavior among Black women. *Journal of Community Psychology, 41(6), 776-782.*

Stevens-Watkins, D., Sharma, S., **Knighton, J**.**S**., & Oser, C. (2013). Examining cultural correlates of active coping among African American female trauma survivors. *Psychological Trauma: Theory, Research, Practice and Policy. 6*(4), 328-336.

EDITORIAL REVIEW

Ad-Hoc Reviewer, **Social Psychology Quarterly** 2016
Ad- Hoc Reviewer, **Social Justice Research** 2015
Ad-Hoc Reviewer, **Women's Health Issues** 2015

PROFESSIONAL SERVICE

Executive Committee, Kentucky Psychological Foundation (KPF)
Kentucky Psychological Foundation Annual Academic Conference
Board of Trustees: OperationFam.org
Doctoral Student Mentor, University of Kentucky
Student Committee: Division 45
The American Red Cross Disaster Mental Health Team
West Louisville Health Coalition
Kentucky Psychological Association
CARES Mentoring

AWARDS & SCHOLARSHIPS

- National Institute on Drug Abuse (NIDA) Travel Award
- National Institute on Drug Abuse (NIDA) Predoctoral T-32 Research Fellowship
- Student Spotlight: Division 45
- Graduate Student Assistantship
- American Psychological Association Division 45 Student Travel Award
- Spalding University Research Travel Award
- School of Professional Psychology Tuition Scholarship
- HRSA Scholarships for Disadvantaged Students Program
- American Recovery and Reinvestment Act Scholarship
- Oakland University Academic Commendation Scholarship